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THE TREATMENT OF PSYCHONEUROSES IN GENERAL PRACTICE

LAUREN H. SMITH, M.D.

PHILADELPHIA

The treatment of psychoneuroses in general practice should be viewed with a broad meaning. Besides the common psychoneuroses, I will include the use of psychotherapy in distressing physical diseases, or in cases of any sort in which there may be an emotional or mental problem, and with any individual who might consult us as physicians for advice on any personal problem involving mental and physical adjustment to life. Patients suffering from frank mental disease need definite psychotherapy and other medical therapy, but consideration of this phase of the field is not included here.

In the classification of the psychoneuroses, one finds general agreement on four central types or symptom complexes; namely, neurasthenia, hysteria, psychasthenia and psychoneurotic anxiety states. The last group includes anxiety hysteria and anxiety neurosis. The latter conditions are difficult to differentiate definitely and for the purpose of this paper such differentiations are unimportant.

ETIOLOGIC FACTORS

The psychoneuroses as clinical entities are ancient. In the time of Hippocrates the etiology of hysteria was considered to be the "wandering womb." In 1934 there are gynecologists and others still advocating hysterectomy as a cure. In later times Charcot advanced the idea that hysteria was due to "inherited taint." Binet, psychologically minded, believed that a patient with hysteria possessed a "double consciousness." Babinski, although an organicist, maintained that all hysterical signs and symptoms were produced by suggestion and that any conditions not removable by suggestion were organic and not functional. Bernheim held much the same view. Still later one finds the psychoneuroses being identified more clearly as to types. Janet presented elaborate psychologic theories as to the different clinical types of psychoneuroses, more descriptive in significance than explanatory as to etiology.

Freud explains the occurrence of psychoneuroses on the basis that mental processes in and of themselves may be etiologically significant. In hysteria, Freud considers that the physical symptoms and signs are the result of mental content, unacceptable to the individual, formerly repressed into the unconscious mind, becoming converted into substitute disguised symbols of the unacceptable mental content. In the same manner, unacceptable desires and wishes may be the origin of the symptoms. The situation is somewhat similar in psychasthenia, wherein an innocuous idea becomes the substitute for the unacceptable mental content. The anxiety states result from immediate difficulties, in which there is a disproportion between sexual excitations and sexual satisfaction and the emotional outlet takes place in the anxiety attack.

Dejerine's important contributions present the view that the psychoneuroses are of mental origin, and he emphasizes the importance of emotional causes being mishandled by incorrect thinking and mental attitudes. Ross in England and Riggs in this country more recently have elaborated and correlated similar views with recent psychophysiologic theory. White points out the loosely organized, faulty synthesis of personality in the hysterical patients, who seem to be children mentally.

Other etiologic theories may be mentioned as containing some points of more or less interest, such as constitutional differences, somatic weakness, hypersensitiveness of the autonomic nervous system, foci of infection, and auto-intoxication. These are particularly important in connection with their frequency of association with a psychoneurosis, rather than being actually significant as definite causes of the condition. In an analysis of 239 cases of psychoneuroses, Strecker and Ebaugh point out certain significant statistics, as follows: predisposition from unfavorable home life, 70 per cent; from constitutional predisposition, 85 per cent; precipitating factors from sex disturbances, 22 per cent; from accidents, 13 per cent; from marital difficulties, 12 per cent; from financial difficulties, operation and deaths, 9 to 11 per cent. Physical examinations showed operations present in 23 per cent, focal infection and physical defects in 9 per cent. Mental examinations showed overconcern in 89 per cent, anxiety in 45 per cent and fears in 33 per cent.

Endocrine disturbance or alteration of function is now popular in etiologic speculation.

The very divergence in these etiologic possibilities goes to accentuate the etiologic nonspecificity. Gathering the discussion together, let me state that I have reviewed important dynamic, physical, psychogenic and environmental factors. The "constitutional differences" and somatic weaknesses are undoubtedly contributing conditions; the peculiarities of functional irregularities of the autonomic nervous system are active manifestations of an existing psychoneurotic condition but one cannot determine whether they may be cause or result. Foci of infection, toxicity, sudden physical or mental shock, and other stress and strain may definitely

From the Institute of the Pennsylvania Hospital.

Read before the Section on Nervous and Mental Diseases at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 15, 1934.

act as precipitating factors. Any of these forces are all contributory. Each individual adapts himself to these contributing factors through the use of the mind. In addition to these factors it is known that there are active influences at work within the mind itself. Such influences may be conscious mental problems, which are ordinarily termed worry or anxiety; more often they may be definite mental conflicts deeply situated because of occurrence within the unconscious part of the mind.

The means one has in making adjustment to such external and internal factors is of course one's mind. Such factors, no matter of what origin, have an end effect on the mind and, in turn, the mind becomes the mirror showing the compensation it reaches in handling or adjusting to the sum total of the external and internal stress and strain. Therefore, the psychoneurotic patient really is an individual in faulty adjustment with one, another or all of these factors, within or without. Therefore it may be correct to say that a condition exists due to etiology from a mental standpoint, since the lack of adjustment is due to the lack of satisfactory handling of the life situations in which the mind finds itself. I do not mean that one has a mental disease, as that would be a total surrender or overpowering of the mental functions. With the psychoneuroses, there is a partial difficulty in adjustment, which involves only a partial decompensation of the mind or individual.

Because I would consider the psychoneuroses to be basically of functional origin, within the mind itself, in later discussion of treatment it will be only logical to state that psychotherapy, or treatment of the mind, and by use of the mind, is the therapy of paramount importance.

DIAGNOSTIC FEATURES

The clinical types mentioned before are separated by no hard and fast lines. A careful, exhaustive study of any psychoneurotic patient may elicit symptoms enough to allow classification in any one of the four groups. Usually there is enough preponderance of one type of reaction to allow proper classification. Even though the differences of the four types are largely theoretical there are practical differences, which are important from the standpoint of therapy. I believe the most important points as far as diagnosis of the case is concerned are, first, an accurate, complete knowledge of the type of symptoms; second, a clear understanding as to the background and development of the symptoms; third, some comprehension of the dynamic forces that are contained therein. Knowledge of this sort cannot be secured except by painstaking history taking, physical and mental examinations, and deep interest in the patient. Then can one really plan for the patient a treatment that will be specific.

In connection with direct diagnosis of each type, I shall briefly outline cardinal symptoms and signs later, under symptomatology and in the description of typical cases.

In connection with differential diagnosis, the difference between a psychosis and a psychoneurosis is naturally important but usually not difficult. It is often considered that they are of difference in degree only, and even though it is difficult in some cases to make a distinction, actually they are fundamentally far different. The psychoneurotic patient lives in and deals with reality. Although many of the symptoms do not have physical or structural origin, they are real experiences to this type of patient. On the other hand, the psychotic patient lives in and deals with unreality. His difficulties come from fantasy, delusion and imagination.

A few confusing situations commonly found may be mentioned. A beginning dementia praecox may show marked signs of neurasthenia or hysteria. Dementia paralytica and psychosis due to arteriosclerosis, slowly developing involutional melancholia, and mild depression may simulate neurasthenia. Some frank psychoses may show marked psychasthenic phobias or compulsions. Anxiety states are often present in hyperthyroidism. But in all psychotic cases the more rapid changing course of the condition, the physical and neurologic changes, and the presence of frank delusions serve to identify a psychosis quickly.

Serious chronic physical disease such as tuberculosis and carcinoma may have a neurasthenic beginning, but careful physical examinations should establish the proper diagnosis. There are neurotic personality types, which the experienced physician recognizes. Positive recognition of these types will aid in preventing confusion, not only in differentiating between symptoms of organic or functional origin but in evaluating the significance of any symptoms of organic causation that may occur in such patients.

SYMPTOMATOLOGY

The classic symptoms of neurasthenia consist of fatigue, usually extreme on the slightest exertion, either mental or physical; marked weakness in all activities; lack of concentration in all mental activity; local sensory symptoms of any type or intensity from any system; a mood of pessimism, discouragement or dejection, sometimes accompanied by anxiety and fears. Headache, backache, insomnia, feelings of inferiority, marked self centering of attention, and peculiar sensations are common.

Mrs. G. presented a characteristic case. She was admitted to the Pennsylvania Hospital at the age of 37. Her complaints were extreme weakness and fatigue, nausea followed by intermittent spells of diarrhea, crying spells, headache, gradual loss of weight, and marked intermittent pains in the legs, abdomen and back of neck.

These weaknesses and digestive disturbances had been present six months when an appendectomy was done to relieve her, and the operation was followed by an increase in weakness, and dejection, and for the next year she was in bed approximately half the time, "resting" to rid herself of weakness. She developed increasing sensitiveness to all sensory stimuli and for four months before coming to the hospital had not left her bed except to use a toilet jar in her room. There were no physical difficulties found to explain any part of the condition. Detailed study brought out no physical factors of great importance except a constitutional hypersensitiveness. There was uncovered a history of lifelong excessive self attention, extreme idealism and ambition based on innate feelings of inferiority because of unattractiveness; these points were accentuated in her marriage to a successful professor and by the beauty and superior intelligence of a 10 year old daughter; her conflict in this situation was aggravated by a desire for more attention and emotional response from the husband. With clear discussion of these matters and a frank facing of the personal problems hitherto evaded, insight on her part was secured, and cooperation as to a definite treatment plan on a basis of scheduled activity in work, exercise, and mental occupation followed. It was a long course of six months and more to recovery, and readjustment in mental attitude was needed for a year or two more to bring the patient to a fixed level of recovery.

Hysteria is so varied in its forms that the types of reactions patients may show will only be outlined. It is

as episodic in its occurrence as neurasthenia is constant and continued. The most common motor and sensory episodic occurrences are paralyses, anesthesias, paresthesias, hyperesthesias, cataleptic or trancelike manifestations, tics, choreiform movements and aphonia. Spectacular symptoms are amnesia, somnambulism, double personality episodes, hysterical psychotic reactions and other disturbances of consciousness. Usually a case shows one type of reaction, with very little mixture with other symptoms. Later attacks may be entirely of a different character.

One woman, aged 20, had fainting spells whenever she was confronted with any test or responsibility in school, such as an examination; later when working in a store, on hearing some very depressing news, she collapsed, complaining of abdominal pain located over McBurney's point. Physical examination showed local tenderness and a left-sided hemianesthesia, but no other physical or laboratory observations were significant. She was followed in the outpatient clinic, and at the time of the death of her mother developed a complete amnesia. Recovery from each of her attacks always occurred automatically within forty-eight hours. She possessed a personality often found in many patients with hysteria, characterized by an extreme desire for affection, marked dramatic emotionalization of all situations in which she moved, and sharpness of sensitiveness to color, sound and all esthetic contacts.

The tendency to dissociation in the hysterical patient is extreme and allies this type of psychoneurosis to some degree to the unrealities of the psychotic group.

The main symptoms of psychasthenia are contained in obsessions, compulsions, phobias, anxiety and nervous tension. The patients are clearly conscious and have full insight into the illogical content of their mind but seem powerless to control its vagaries.

One woman, aged 21, was so constantly doubting the morality of every one about her that she could think of nothing else; if this disappeared she would develop a doubt as to whether the front door was closed or the water spigot turned off. There was no question that these obsessions and doubts had a sexual significance for her.

The substitution of an innocuous idea as expressing deeper unacceptable wishes or desires in the psychasthenic patient is similar in some particulars to the substitution of the physical symptom in the hysterical patient.

A man, aged 37, had to check and recheck everything he did for fear that it was not correct. Unfortunately he was an accountant, and one can imagine the extra work it made for him. In a fashion his compulsion acted as a sort of punishment and it is interesting to note that, when it subsided, fantasies of a sexual nature became active.

Other symptoms are common, such as hand washing, repeated touching of certain objects, and inability to use certain numbers or objects. Very common is the feeling of the psychasthenic patient that he must not allow himself to get into any situation or place from which there is no escape. Some night I am going to hand a questionnaire to all persons sitting in the aisle seats and on the back row of a theater. This condition is common enough to make me believe that a large percentage of people taking these seats of easy access and escape are persons who are greatly susceptible to psychasthenic reactions.

It is also interesting to note that in this group a personality characteristic found is a tendency to be extremely particular, exact and precise. The old association of miserliness, exactness and constipation is a vulgar, amusing example.

Anxiety states are often very similar, although the variety of minor symptoms may be manifold. Characteristic intense anxiety and extreme fear, definitely connected with one idea or another, is quite constant. This emotional tension is manifested in attacks with great cardiac, respiratory, vasomotor or gastro-intestinal disturbance. Phobias of crowds, open spaces, closed spaces or impending death are as common as in psychasthenia. The anxiety states are similar in character in some respects to an "acute" neurasthenia.

A man, aged 31, consulted a surgeon because of chronic flatulence, belching, indigestion and tachycardia. The surgeon recognized the emotional tension behind the symptoms and uncovered many panic and fear reactions as well. He referred the patient for psychotherapeutic treatment and in the first hour of consultation the patient discussed at great length his anxieties, difficulties, symptoms and any other material he chose to bring up. He returned in one week to the psychiatrist, remarking that he had never unburdened himself before, nor had he ever felt deeply reassured about himself before. He delightedly volunteered the information that he had been absolutely symptomless since the previous interview. The psychiatrist told him that he would not remain symptom free but that, even though the symptoms would return, they could gradually be understood and adjusted and finally eliminated after some continued treatment. Throughout several weeks' careful study of his entire life and emotional habits, childhood personality traits, and analysis of his present-day difficulties, he reached a more efficient basis on which he was able to work out better personal, family and environmental adjustments. The previous lack of emotional outlets no longer persisted and other origins of his anxiety state were exhausted, giving him a slow but good return to normal health.

CONSIDERATIONS REGARDING TREATMENT

The basic etiology of psychoneuroses has been discussed as of functional origin, in reference to possibility of effective treatment. The importance of a complete detailed knowledge of the entire organism, mental and physical, has been emphasized as necessary for proper diagnosis. The clinical syndromes have been briefly outlined in order that a common ground of understanding may be reached. I will now take up material regarding the possible approaches for treatment of the patient.

Treatment, being a very wide subject, will be taken up from the following aspects: (1) the ideal treatment of the frankly ill or "acute" psychoneurotic patient in practice or in the hospital; (2) the types of treatment in vogue or used by the specialist; (3) the uses of psychoanalysis; (4) the basis of treatment through psychotherapy to make most effective advances in the prevention of psychoneuroses and a discussion of significant associated material.

The first step in contact with the patient is the taking of a detailed history from the patient. This may not be necessarily formal in the beginning, for an informal consultation or two in which the patient tells his story and gives his view as he wishes may fix confidence and respect for the physician because of his evident interest and patience as a good listener. This history must include details concerning the entire life, childhood, adolescence, youth and onward. The gaps in the history may be even more significant than the material given. More is needed than physical illnesses and happenings. Facts about personality development, emotional experiences, points about the inner mental life and what influences there have been on it, and what habits or attitudes in emotional reactions thought and conduct ensued are very important. The attitude of the physician toward the patient is equally important, for, regardless of the social significance of the patient's

story or situation, the physician must remain entirely uncritical, at least at the beginning. All of the history in an ill patient will never come forth in the early interviews. It is a long job to correlate all one finds out from a patient, and a gradual construction of the origin, development and course of the illness must be made. As treatment progresses, one may be surprised to find new significant recollections uncovered in the history, even after months. The patient may not be evading or lying; it may have been impossible to recall or uncover these points before.

After an initial consultation or two regarding history, a complete physical study of the patient should be made. It cannot be emphasized too strongly that this should be done more conscientiously and with more care than when the patient has some simple physical disease, if such a difference in examining patients could exist. There are several reasons for this: First, the patient must be thoroughly examined by the physician in order that any physical factors may be properly evaluated as influences on the patient or as connected with the illness. Second, one must be certain that all treatment for physical disease may be adequately known and prescribed for, regardless of its connection or lack of connection with the psychoneurosis. To digress for a moment, the successful treatment of a psychoneurosis or any other type of disorder or disease depends on treating the individual as a unified mental and physical being, not as a being of separate mental and physical entities. Third, a complete physical study impresses the patient with the thoroughness of the physician, laying the basis for confidence in what the physician says. It would be very hard for the patient to accept the physician's statements and proof of the functional origin of the symptoms or difficulties if the patient considered that he had not been studied completely. There are exceptions to these points about physical examinations, but not in the general treatment of psychoneuroses, but only whenever specialized psychotherapy is given on theoretical grounds, and such exceptions lie outside the scope of this discussion.

By this time the physician has sufficient knowlege about his patient from history and examinations to make a definite plan for therapy. This plan is based on a careful study of the patient as an individual who reflects his environment and how it affects his reactions. The mental and physical aspects are studied and evaluated and are treated in proportion. A definite schedule of living should be drawn up on the proper balance of work, play, exercise and rest, according to the ability and need of the patient. The regularity, intensity and organization of an outline of psychotherapy for every aspect of the patient's mental life is the keynote of the treatment. What is psychotherapy? Psychotherapy may be termed any influence on a patient's thinking, feeling and acting that serves to produce a constructive, more efficient readjustment resulting in purposeful living. It is really organized planned mental realinement of the patient, arrived at largely through his own acquisition of insight and his own efforts.

His functional difficulties and symptoms must be worked out with the patient, as manifestations of his mental or emotional conflict. Carefully conducted reeducation, in an intelligent patient, will be successful in showing him how emotional disturbances have bodily effects and how anxiety attacks and fears likewise have deep seated origins within.

Whenever possible, readjustment of the external factors influencing the patient, such as relationship to friends and relatives and to social, economic and financial matters, naturally is very necessary and is part of any complete treatment.

It is evident that treatment carried out along the lines just described is an involved and time taking procedure. In general practice such treatment may be impossible, for many practical reasons. For this reason, at the Institute of the Pennsylvania Hospital we are endeavoring to study methods of adequate psychotherapeutic treatment less involved. Some of these types of treatment may be applied in general practice, others may be best applied by the psychiatric specialist; but, planned as they may be, they do not approach as yet the ideal outline of treatment previously described. In time, however, we may be able to point out certain treatment principles, derived from study of these methods, that may help to evolve simplified but effectual plans of therapy.

In the clinics of the Institute of the Pennsylvania Hospital, the experience has been that patients divide more or less into about six "therapeutic" groups:

The first group consists of those patients who come for one interview, who merely want to get oriented as to the meaning of certain troublesome personality characteristics, intense mood swings or difficult behavior patterns. One may want to do little more than confess many difficulties and conflicts; another may wish reassurance and encouragement because of attitudes of inferiority; a third may be concerned over personal and family adjustments of the most difficult character. Evidently they seem to take pride in working things out for themselves, after getting a brief start in the correct direction. Perhaps it is better that the physician let them do so without further aid. Doubtless, many of them may be no better and may need to return but a trial on their own may prove very worth while.

A second large group is made up of patients who are not intelligent enough for careful self study and reeducation. Other factors too numerous to mention may prevent deep psychotherapy for a prolonged time. The medical practitioner must carry throughout life some individuals who need a physician as a sympathetic listener, a cautious adviser and friend who will dissuade them from too great anxiety by reassurance, suggestion, persuasion and finally through habit training, hydrotherapy, electrotherapy and various physical therapies. Little can be said in favor of a plan such as this, for it is usually employed because no plan can be made at all. This could be termed general psychotherapy, on the basis that the patient's problems are met squarely as of functional origin.

Reeducation is a form of psychotherapy very worth while, which is used in a third group. This group is made up of the more intelligent types of patients who realize to a certain extent the functional aspects of their problems. Such patients follow a plan that is closely allied to the ideal type of treatment described before. A special point made use of in this technic is the study and reading a patient does in connection with special written material on mental hygiene. The organized plan of study and discussion and balanced schedule of living that comprise much of this treatment appeal to the patient who is systematic. It is something very definite, which they can grasp and use. Any unconscious difficulties may be evaded or sublimated, however, and are undoubtedly little influenced.

With other patients it is sometimes necessary to dig deeper to find causes for their difficulties, and occasionally certain patients cannot face certain personal

problems until they are shown their possible deep-seated mental origins. Special technic such as the use of free association, word association, and the study of dreams may be used to get them to comprehend the mental and emotional aspects of their difficulties. This approach to the patient, dealing with methods that should be regarded as intensive psychotherapy, should be called deep psychotherapy as compared with a reeducational approach.

The fifth group is one in which there are comparatively few cases. In these are seen deep emotional conflicts or problems, which may not be influenced by deep psychotherapy. In order to uncover some of these problems, a modified psychoanalytic approach is utilized. By this I mean a purely psychoanalytic technic carried out once or twice a week, over a long period of time, to work out explanations and understanding of deeper conflicts gradually. Modified psychoanalysis is no psychoanalysis at all in the usual case, but in some instances this adaptation is of real help.

Orthodox psychoanalysis, the sixth and last group, is of limited application for a few cases. It has already contributed vast help to psychiatry as a whole and holds much promise for treatment for the more severe psychoneuroses. Before I proceed further, some discussion regarding it is in order.

THE CLINICAL RELATION AND IMPORTANCE OF PSYCHOANALYSIS

Besides the contributions psychoanalysis has made in other fields, much of the advance psychiatry and psychologic medicine has made in recent years is due to psychoanalytic contributions. By psychoanalysis I mean freudian orthodox psychoanalysis. It is a new psychology, a new understanding of the mental make-up of man, as well as a new technic in the treatment of nervous and mental patients. It cannot be denied justifiably that a great deal of the understanding now had of the deeper motivations underneath human emotional reactions and behavior has evolved largely from the psychoanalytic field. Before its advent, psychiatry was largely a descriptive diagnostic specialty in medicine. Now active psychiatric treatment is instituted in direct attack on symptoms and manifestations from the patient which are understood to a greater degree than ever before. This treatment is not by any means always psychoanalytic but a critical study of much psychiatric theory and practice shows it to have a foundation derived from what has been produced by psychoanalytic study. Nevertheless the views and theories of Freud, who is almost solely responsible for psychoanalysis as it exists today, are not definitively and ultimately confirmed and proved. They are good helpful hypotheses. The use of psychoanalysis as a type of specialized treatment likewise is as yet not well enough established, and I am deeply conscious of its great limitations. My discussion at this point is not that of an enthusiastic psychoanalyst. It is the view of a physician practicing psychiatry as a specialty, in which is used orthodox psychoanalytic theory and technic.

The first requirements of good psychoanalytic treatment is that the psychiatrist have a fundamentally sound training culminating in his own analysis. The direct treatment with the patient is a formal interview involving an hour a day usually six days a week. The patient reclines, not facing the analyst, and is requested to utter his thoughts and express himself freely, with no reservations. His associations carry the study deeper and deeper, and childhood or deep memories, fantasies, wishes, and so on, may be recalled and their emotional counterparts relived. The analyst more or less automatically becomes identified with the rôle of those individuals important in the life of the patient. The transference situation, or emotional tie-up between patient and analyst, is the outgrowth of this process. By guiding the patient in his associations and giving interpretations of the meaning of some of the recalled material, emotional responses, and also by similar study of accompanying dreams, the analyst is able to help the patient gain a better understanding of his deeper motivations. These processes have been buried in the unconscious part of his mind, and through this technic of treatment the deeply rooted origins of psychoneurotic symptoms and reaction patterns may be uncovered and relieved, and a cure established. The treatment is likewise used in personality difficulties and even in mental diseases, but with less success. As to its applicability, I believe that it will be most applicable and effective first with personality maladjustments, secondly with psychoneuroses of not too great a duration, and thirdly and most guardedly with some mild psychotic reactions. It must be remembered that psychoanalysis is essentially on one side a destructive process and, in the individuals with whom it is used, constructive possibilities must be present or the analyst must supply a substitute for such possibilities or damage instead of benefit may result.

There are many points in which the limitation of psychoanalysis appears. The patients ideally must have a good grade of intelligence; they must not be too old, preferably under 50 or 40; they must be willing to cooperate in this treatment; the resistance or normal defense reactions to deep analysis must not be too difficult to alter; there is a great amount of time and expense involved, owing to the frequency and length of treatment.

How much more effective psychoanalysis is in curing psychoneuroses than other forms of psychotherapy is yet to be proved. The psychoanalysts insist that all other forms of psychotherapy are superficial and only palliative and therefore futile. But many psychiatrists feel that other forms of general psychotherapy, using information gained from patients, and based on psychoanalytic theory, is effectual. Practically it is often obviously impossible to use psychoanalysis for several reasons, and other psychotherapy must be used in more possible lines.

THE GENERAL PRACTITIONER AND THE PREVENTION OF PSYCHONEUROSES

It is clear that the problem of treating the psychoneuroses in the community cannot be solved alone or best by effective treatment of the ill patient.

What is available to the general practitioner in the way of intensive psychotherapy? Little, in fact, little more than what he may intuitively possess or have acquired through years of active practice. He is definitely limited in treating the more severe psychoneuroses or problems of mental hygiene, mainly because he has never been given adequate opportunity in his earlier education and training. This condition is still true in most medical schools today. A second reason is that a busy general practice will not allow adequate treatment time to be given in an involved or advanced psychoneurosis. The psychiatrist must be called in to meet such problems as best he can. It follows then that the family physician must regard himself more as a potent influence in the field of prevention of nervous and mental disease, where he can be extremely effectual.

By expending much time and effort he may succeed with some, in fact with many, and be impressed with the fact that the solution of the huge number of functional nervous disorders is not in their actual treatment but in their prevention. In recent analysis of medical education in the United States, the National Committee for Mental Hygiene found adequate instruction in psychiatry for undergraduates in only ten out of sixty medical schools. Obviously the men graduating from these schools are going to practice medicine with an unbalanced approach toward the patient. This unbalanced approach may be one reason why the shady sisters of medicine, for example, chiropractic, Christian science, faith healing and similar charlatanry, flourishes so much today. And the economic difficulties which many of worth-while medical practitioners have besetting them today may be coming from the inroads made by these other so-called therapies. In one metropolitan area in the past year, 19 per cent of all the physicians had an income of less than $1,000 a year. It is my honest belief that, if medical men in the community could and would use scientific consideration and therapy for the mental aspects of their patients' illnesses, these conditions would not exist as they exist today, and the better health due patients would likewise be assured.

The economic and social importance of the psychoneuroses is astounding. Conservative estimates have been made as to how many patients in general office practice have no physical or structural disease. These estimates run from 35 to 75 per cent. There is no question that there are hundreds of thousands of functional nervous disorders seen every day. The time these persons lose in health and happiness and in economic loss is appalling to consider. After these illnesses develop, treatment involves excessive study and time beyond that which the family physician can spare in a busy practice. The problem may be almost unsolvable as physicians try to meet it now. But in the development of the field of preventive medicine a technic of handling nervous patients may be built up in such a way that psychoneuroses do not take form. In infancy, childhood, puberty, adolescence, early youth, the menopause and old age, mental changes as well as physical changes take place. Treating the patient, whether physically or "nervously" ill, as an integrated individual in relation to his environment is of paramount importance. The individual is really an integrated whole, consisting of mental and physical aspects, each dependent on the other and influencing each other most profoundly. The effective prescription given for the best interests of the individual and patient should, in the ideal sense, contain therapeutic elements that will act as a specific for the mental side as well as for the physical.

In the last analysis, therefore, instead of considering the psychoneuroses as special conditions with which the psychiatrist deals, physicians should consider it basically a problem for general practice in preventive medicine.

SUMMARY

How can a psychoneurosis be prevented or aborted? Keeping in mind points already discussed regarding the make-up of patients and the factors that may be causative, let me list a few practical points as guides in handling an incipient psychoneurosis or psychoneurotic tendencies in any medical or surgical patient:

1. Recognition of the personality types that are likely to become maladjusted.

2. The recognition of specific emotional difficulties and their resulting symptoms. This means diagnosing a psychoneurosis from the finding of positive and specific psychoneurotic factors and symptoms, rather than merely making the diagnosis by exclusion because nothing else can be found to explain the condition.

3. Avoidance of comment before the patient about functional differences or changes in the organs that are not significant. This is extremely important with impressionable, emotional children.

4. Willingness to work out explanations and treatment for functional conditions bothering adults, instead of dismissing such difficulties on the basis of mere worry or imagination.

5. Specifying the direct purposes of all treatment and its relation to the patients' difficulty as a whole. Some patients tend to misinterpret the significance of treatment instituted and thereby their symptoms may become fixed or enhanced to a greater degree instead of being alleviated.

6. Direct, purposeful use of psychotherapy in all phases of medical practice, wherever there is any indication or possibility of such need.

There are a few great scientific men who are what they are because they are so scientific and need be nothing more. But no man can be a truly great physician who does not treat the mind of his physically ill patients as well as their physical illnesses.

Let the physician become more conscious of the fact that he is essentially a therapist. He should treat what the patient has got, not decide the patient has got what the specialist wants to treat.

The general practitioner is not only a chemotherapist and a physical therapist but likewise a psychotherapist. If he is really conscious of his constant psychotherapeutic influence with his patient he will carry further to absolute results the well being and improvement of his patient and raise the level of health and happiness in his community.

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ABSTRACT OF DISCUSSION

DR. ALAN D. FINLAYSON, Cleveland: Dr. Smith raised the question of whether a detailed history was not sometimes impossible. There is only one condition under which I can see that it is impossible, and that is when the patient visits the physician only once. Dr. Smith also made the statement that psychoanalysts claim that any other treatment, aside from psychoanalysis, is superficial and futile. With the term "superficial" I would agree. Most analysts, however, do not believe that other treatment is futile if an orthodox analysis cannot be done. Any treatment of the neurotic that is not based on the dynamic concept of their trouble is usually ineffectual. In a recent study by Dr. Ebaugh and his colleagues of medical education in the United States the statement was made that fifty out of the sixty medical colleges had inadequate instruction in psychiatry. I do not believe that the adequacy of a psychiatric course in college is dependent entirely on the number of hours given, but I do think it depends on whether it is presented from a dynamic standpoint. In other words, why does the patient act or think as he does? Why does he have hallucinations? I think that psychiatry is taught this way in comparatively few medical colleges. This lack of adequate psychiatric education is the answer to a great many difficulties the general physician has in handling the neurotic patient. In many chronic conditions, chronic disturbances of the heart, cancer, chronic kidney trouble, in which there is nothing that one can do to alleviate the condition, there is a great deal one can do in straightening out life's pathway and in making life far more comfortable for the patient.

DR. HAROLD S. COHN, Cleveland: I am interested in the treatment of neuroses only from the general practitioner's point of view. Dr. Smith in classifying the cases relative to treatment left out an enormous group whose neurotic symptoms are due to something that is usually ignored by the psychiatrist. That something is the economic factor. General practitioners see many patients with various types of neuroses and presenting a host of functional symptoms, particularly gastric. Invariably their trouble can be traced to the fact that they are worried financially. This is particularly true of the last four years. It is the economic factor in most of the ordinary neuroses. For this entire group Dr. Smith has not suggested any suitable remedy. It is this economic insecurity that causes most of the neuroses, and unless the neurologist or psychiatrist can tell how to solve this economic factor, general practitioners cannot treat such cases. The psychiatrist should be able to tell how to prescribe mental ease and freedom from worry as to economics. Another point is that as long as doctors who go into this field of medicine learn that the individual must adjust himself to his family, to himself and to society, they should learn something about the structure of society. I find that doctors do not know a thing about the economical and political structures of the society to which the individual has to adjust himself, and the doctor cannot adjust him to that society unless he knows that particular phase of it. In other words, training in the field of social science and economics should be added to the course of neurology in medical schools.

DR. LLOYD H. ZIEGLER, Albany, N. Y.: I am in accord with Dr. Finlayson that serious consideration should be given to doing away with the terms "neurasthenia" and "psychasthenia." If one will look into the historical aspects of the word "neurasthenia" one will find that it does have much basis, despite the fact that Baird used the term about the middle of the last century. It has been my experience that, if these so-called cases of neurasthenia are studied carefully, one may find Addison's disease, early parkinsonism, myasthenia gravis, psychotic developments, incipient pulmonary tuberculosis, and any one or more of a host of other possible diseases. The recent survey on psychiatric medical education made by the National Committee for Mental Hygiene discloses fundamental defects in the teaching of this subject in the majority of the medical schools today. Although much progress has been made in the teaching of psychiatry, most physicians in the past have been inadequately trained to deal with these difficult and intricate problems not usually explainable on somatic bases. There is no doubt that recent economic insecurities have affected the health of people variously. Some individuals with serious economic problems solve them with great equanimity. In others, trivial losses elicit outstanding maladaptations.

DR. T. EARL MOORE, Miami, Fla.: There are general practitioners, orthopedic men and cardiologists who are sending people to resorts to have "something" taken care of. What happens in the resort towns is that these patients come in contact with people who are psychiatric minded, the public as well as psychiatrists. It is the duty of the physicians in these resort towns to refer them back home. A vacation away from home is no panacea for psychiatric ills; as many founder as are helped by such treatment alone. The patient needs a psychiatrist back home much more than he needs a vacation. A correctly advised vacation, however, at the time indicated, may be specific therapy.

DR. LAUREN H. SMITH, Philadelphia: I agree with Dr. Finlayson that not all psychoanalysts consider other psychotherapy futile, although psychiatrists are more prone to consider other psychotherapeutic measures very worth while, even though they may be only palliative and not entirely curative. Dr. Moore mentions how the psychiatric patients are dumped on physicians at various summer resorts. This brings to mind how much better results are often obtained with the patient who is treated in a change of scene from home and relatives. Dr. Cohn has found his practice complicated because of the depression. In the consultation clinic we also found many cases in which the economic factor has been the precipitating and continuing cause of illness. With many patients, however, psychotherapy can be used to help them acquire a greater feeling of adequacy within themselves, particularly relating to the handling of the present economic problem, and they will sometimes get along much better. Dr. Ziegler mentioned the matter of diagnosis. What may be an anxiety hysteria this week may soon be a full-blown obsessive psychasthenia, and at other times definitely neurasthenic in type. I do not feel that diagnoses are important if one gets at the fundamental dynamics back of the problem; and if the conditions are considered to be disturbances of the general integration of the individual the form of that manifestation does not matter so much if one knows the origin of it within. The relation of the problem to general medicine is of the utmost importance. Here at the convention two physicians, one a gastro-enterologist and one a specialist in arthritis, have told me their problems relating to neurotic tendencies in patients. The specialist in arthritis states that he is unable to do anything with a great percentage of his patients on a medical and dietary regimen unless he works with them over a long period on a purely psychotherapeutic basis. Likewise the gastro-enterologist said he considers himself about 50 per cent psychotherapist. A large number of patients are referred to the psychiatric clinic by the university gastro-enterologic clinic.

REDUCTION OF PREMATURE INFANT MORTALITY THROUGH DETERMINATION OF FETAL SIZE IN UTERO

AN ATTEMPT TO CONTROL WEIGHT AT BIRTH ACCORDING TO THE COMPLICATION OF PREGNANCY PRESENT

STEWART H. CLIFFORD, M.D.
BOSTON

During the past eleven years 30,781 infants weighing more than 5 pounds (2,268 Gm.) at birth have been delivered under the supervision of the Boston Lying-In Hospital with 378 neonatal deaths—a mortality of 1.2 per cent. In this same period there have been 958 infants delivered weighing less than 5 pounds with 364 deaths—a premature infant gross mortality of 38 per cent (chart 1). Thus it is seen that the premature infant group, representing but 3 per cent of the total births, contributes one half of the neonatal deaths. Ordinary pediatric methods have been unable to improve this situation, since over 80 per cent of the premature infant fatalities occurred within the first forty-eight hours following delivery (chart 2). Our experience during the past year suggests that the premature infant mortality can be reduced further by the simple method of delaying the induction of premature labor, whenever possible, until a viable baby can be assured.

It is a truism that the larger the premature infant the greater will be its chance of survival. Evidence has been obtained suggesting that the weekly gain in weight of the fetus in utero is 4 ounces (113 Gm.) during the seventh lunar month, 6 ounces (170 Gm.) during the eighth, and from 8 to 12 ounces (227 to 340 Gm.) per week during the ninth month. The close relationship that exists between the birth weight of the infant and its viability is demonstrated in chart 3—with each 8 ounce increment in body weight there is a striking reduction in the death rate. The importance of even one week's delay in the termination of pregnancy becomes apparent.

An analysis of 958 consecutive deliveries of premature infants reveals that the opportunity to control the

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Read before the Section on Pediatrics at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 13, 1934.
This is the fifth in a series of Studies on the Reduction of the New-Born Infant Death Rate from the Boston Lying-In Hospital, the Departments of Obstetrics and Pediatrics of the Harvard Medical School and the Department of Child Hygiene of the Harvard School of Public Health.

time at which pregnancy shall be terminated was present in 49 per cent of the cases. The mothers of 28 per cent of the premature infants had toxemia complicating their pregnancy, 7 per cent had vaginal bleeding of unknown cause, 5 per cent had placenta praevia, and 4 per cent had either diabetes mellitus, pyelitis or pulmonary disease. Of course, the doctrine of "delay until viable" is applicable only when the general condition of the mother permits such a procedure; fortunately the maternal state is rarely serious enough to demand the sacrifice of the fetus. Furthermore, as will be pointed out later, under certain conditions the best interests of the fetus sometimes are served by immediate delivery irrespective of its size. Bearing the exceptions in mind, the policy of delaying delivery until viability is assured gives promise of effecting a material reduction of the premature infant mortality.

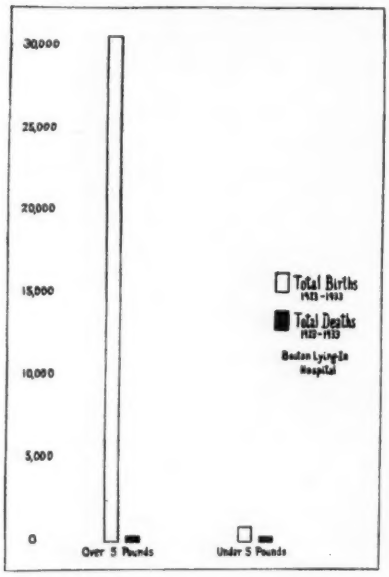

Chart 1.—Total births and total deaths in the Boston Lying-In Hospital from 1923 to 1933.

The determination of the ideal moment for the elective termination of pregnancy in the individual case depends on the possession of reliable information concerning the size of the fetus in utero. A method whereby this knowledge can be obtained has recently been reported.[1] The occipitofrontal diameter of the fetal head in utero is measured by means of a modified roentgenometric technic. The fundamental studies of Scammon and Calkins [2] have established that this diameter serves as a reliable index as to the maturity of the fetus. As one is unaccustomed to think of the degree of fetal maturity in terms of occipitofrontal diameter, it has been necessary to translate this figure into the understandable language of body weight. The relation that exists between the occipitofrontal diameter and the birth weight has been established through a study of more than 600 new-born infants. A graph has been prepared incorporating these data with the relation Scammon found to exist between this diameter and fetal age and with our statistics concerning the mortality for various weight groups (chart 4). It is possible, therefore, from a roentgen determination of the fetal head diameter in utero to predict the minimum and probable birth weight, the age of the fetus and the mortality to be expected. During the past year 240 such determinations have been made.

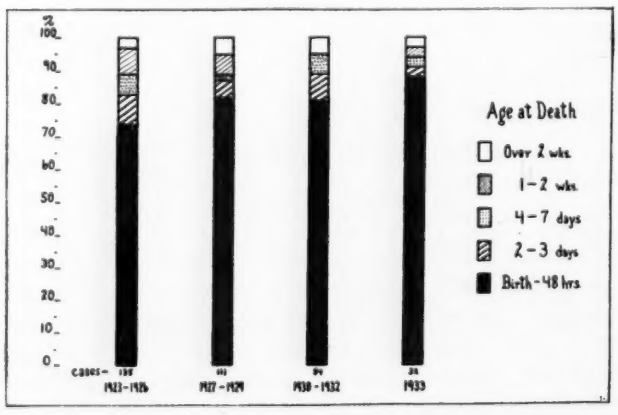

Chart 2.—Percentage of premature infants dying at various ages.

CONTROL OF THE BIRTH WEIGHT IN TOXEMIA

Pregnancies complicated by toxemia are responsible for a large proportion of the premature infants born alive and a still greater proportion of the premature infants stillborn. Toxemia apparently starves the fetus through involvement of the placenta and kills the fetus when the placenta becomes grossly infarcted or separates prematurely. It has been our experience that the infant of a toxemic mother is generally well developed but undernourished—it consistently approaches the minimum weight to be expected from its occipitofrontal diameter measurement rather than the average. It has also been our experience that, providing the toxemia does not kill the fetus in utero, premature infants of mothers with toxemia encounter the same mortality rate as do infants of comparable weight delivered of mothers with uncomplicated pregnancy [3] (chart 5). The fetus in toxemia is exposed to two hazards—too early delivery and death from prematurity: too great a delay in delivery and a fatal intra-uterine accident.

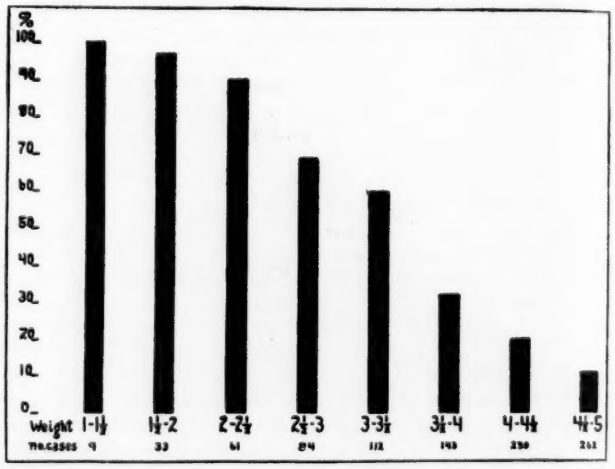

Chart 3.—Premature infant mortality according to birth weight.

Toxemia of pregnancy was present in 6 per cent of the 3,084 deliveries that took place in 1930. The fetus was stillborn in 12 per cent of the cases with this complication; one half of the stillborn infants weighed more than 5 pounds. The fetus was delivered alive as a premature infant in 11 per cent of the cases. In 10 per cent of the group the infant weighed from 5 to 6 pounds (2,268 to 2,722 Gm.) when delivered.

The possible relation between the level of the maternal blood pressure in toxemia and the occurrence of a

1. Clifford, S. H.: I. The X-Ray Measurement of the Fetal Head Diameter in Utero, Surg., Gynec. & Obst. **58**: 727 (April) 1934.
2. Scammon, R. E., and Calkins, L. A.: Growth in the Fetal Period, University of Minnesota Press, Minneapolis, 1929.
3. Clifford, S. H.: Reduction of the Premature Infant Mortality; A New Approach Through the Estimation of Fetal Weight in Utero and as a Result of an Analysis of the Influence of Obstetrical Factors Upon the Viability of 958 Premature Infants, J. Pediat. **5**: 139 (Aug.) 1934.

stillborn infant has been investigated in fifty-five cases to date. When the systolic pressure remained below 150 mm. of mercury, no stillborn infants were encountered. When the blood pressure was between 150 and 180, the stillbirth rate was 11 per cent. With the blood pressure between 180 and 210, the stillbirth rate was 43 per cent. As no pregnancy was allowed to continue to higher levels of blood pressure, there are no data available from this series as to the stillbirth rate for levels above 210.

In pregnancy complicated by toxemia in which the systolic blood pressure stays below 150, the evidence

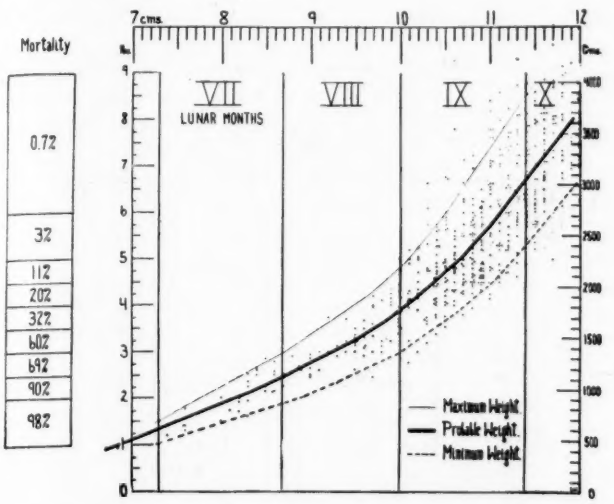

Chart 4.—Relation of occipitofrontal diameter to birth weight, fetal age, mortality.

available at present indicates that there is little danger of intra-uterine death, and pregnancy might well be allowed to continue.

In pregnancy complicated by toxemia in which the systolic pressure remains between 150 and 180, the best interests of the fetus are served by a prolongation of pregnancy until a birth weight of 5 pounds can be assured and then delivery should be made. In toxemia of this degree the fetus is exposed to an 11 per cent chance of being stillborn. If the fetus were delivered weighing from 4 to 4½ pounds (1,814 to 2,040 Gm.) at birth it would encounter a 20 per cent mortality; from 5 to 6 pounds an expected mortality of 3 per cent, and above 6 pounds an expected mortality of 0.7 per cent.

In pregnancy complicated by toxemia in which the systolic pressure remains between 180 and 210, the fetus has a better chance of surviving if delivered as a 3½ pound (1,533 Gm.) or more premature infant than if pregnancy is prolonged in the hope of obtaining a larger baby. The stillbirth rate is 43 per cent in the presence of toxemia of this degree of severity, as opposed to a premature infant mortality rate of 32 per cent for infants weighing from 3½ to 4 pounds at birth.

The premature infant mortality statistics that have been given are based on a sufficiently large series to be significant. The relation between the blood pressure level in toxemia and the stillbirth rate that has been submitted is based on a study of fifty-five cases. The information concerning the fetus in toxemia is presented at this time in the nature of a preliminary report; much work remains to be done before this relationship is thoroughly understood.

CONTROL OF THE BIRTH WEIGHT IN HEART DISEASE

In pregnancy complicated by heart disease the fetus can be allowed to mature in utero with safety only as long as the mother presents no sign of cardiac failure. The fetal prognosis is better if pregnancy can be terminated prior to the onset of serious decompensation irrespective of the weight of the infant (chart 5). The premature infant mortality in the presence of congestive failure is 80 per cent; this is probably due to the fact that the majority of these infants must be delivered by cesarean section, that 73 per cent of the mothers have received morphine preceding delivery, and that the placental circulation must be involved in the general circulatory failure. It has been my impression that the prolongation of pregnancy in the presence of heart disease does not subject the fetus to the hazard of intrauterine death, as is the case in toxemia.

CONTROL OF THE BIRTH WEIGHT IN THE PRESENCE OF BLEEDING

In the presence of gross vaginal bleeding, whether it is due to placenta praevia or to premature separation of the placenta, the sooner fetal delivery can be accomplished the better the infant's prognosis.

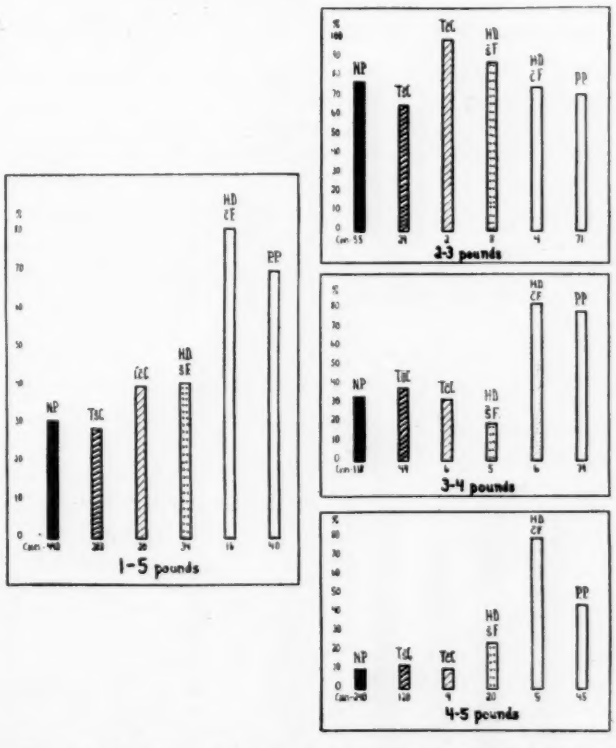

Chart 5.—Premature infant mortality according to complication of pregnancy by birth weight.

When the bleeding is slight and when the mother can be kept in a hospital under constant supervision, it may sometimes be possible to delay the gas examination and to determine the cause of the bleeding until such time as a viable fetus can be demonstrated.

CONTROL OF THE BIRTH WEIGHT IN THE PRESENCE OF DIABETES MELLITUS, PYELITIS OR PULMONARY DISEASE

When pregnancy is complicated by severe diabetes mellitus, pyelitis or pulmonary disease, it may be advisable to induce labor without regard to the size of the fetus. In the milder cases the demonstration of a fetus

of adequate size may make further prolongation of pregnancy unnecessary.

SUMMARY AND RESULTS

Further reduction in the distressingly high premature infant mortality depends on reducing the number of deaths in the first forty-eight hours of life. The condition of the premature infant at birth may be improved by delaying the induction of labor, whenever possible, until an infant of adequate birth weight can be assured. An estimation of the weight of the fetus in utero can be obtained through mensuration of the occipitofrontal diameter of the fetal head by means of a modified roentgenometric technic, which diameter in turn can be translated into terms of expected body weight.

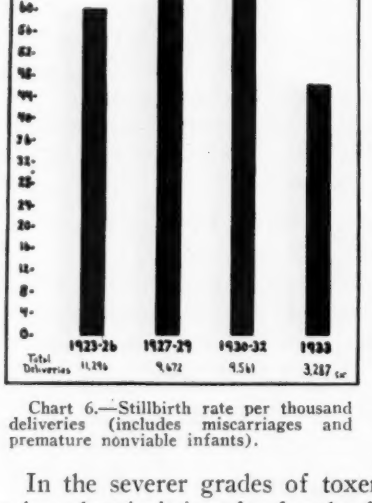

Chart 6.—Stillbirth rate per thousand deliveries (includes miscarriages and premature nonviable infants).

In the severer grades of toxemia the situation may arise wherein it is safer for the fetus to take its chance being delivered as a premature infant than to run the risk of being stillborn should pregnancy be allowed to continue. The risk to the fetus of being delivered as a premature infant can be determined from information as to its expected birth weight. In reaching a decision this is compared with the chance of fetal death in utero as determined from an evaluation of the severity of the toxemia.

In pregnancy complicated by heart disease without failure there appears to be little danger of intra-uterine death of the fetus, and pregnancy may be allowed to continue as far as the maternal condition will permit. It is important to the future of the fetus that delivery should not be delayed until congestive failure develops, for under these circumstances the premature infant mortality mounts to 80 per cent.

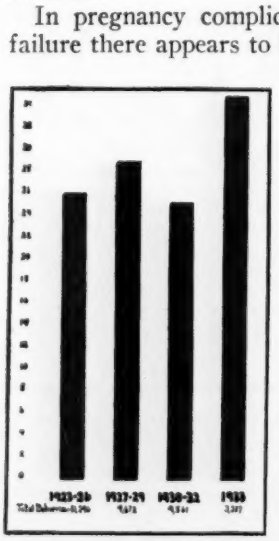

Chart 7.—Incidence of premature infants alive at birth; rate per thousand deliveries.

When pregnancy is complicated by slight vaginal bleeding it may be possible to delay diagnostic examination, with the attendant danger of inducing labor or precipitating hemorrhage, until such a time as a viable baby can be demonstrated by roentgenograms. In the presence of gross bleeding the sooner the fetus can be delivered the better its prognosis.

The influence of knowledge as to the weight of the fetus in utero in the management of certain types of pregnancy is felt to have contributed to the reduction in the stillbirth rate to 47 in 1933 from a level of 69 per thousand deliveries for the preceding ten years (chart 6). It has been instrumental in increasing the incidence of premature infants born alive from an average of 27.6 for the preceding ten years to 34.7 per thousand deliveries for 1933 (chart 7). Furthermore, the proportion of premature infants weighing from 4 to 5 pounds at birth increased from an average of 52 per cent for the preceding ten years to 61 per cent during 1933 (chart 8). Finally, the premature infant mortality dropped for the first time in five years from 35 per cent to 29 per cent (chart 8).

Two important additional influences collaborated with the determination of fetal maturity in effecting the improvements recorded. The general use of pentobarbital and scopolamine analgesia during labor has resulted in a definite reduction in the incidence of operative deliveries.[4] With the mother relieved of pain, labor was allowed to pursue its natural course through full dilatation of the cervix to normal delivery. Secondly,

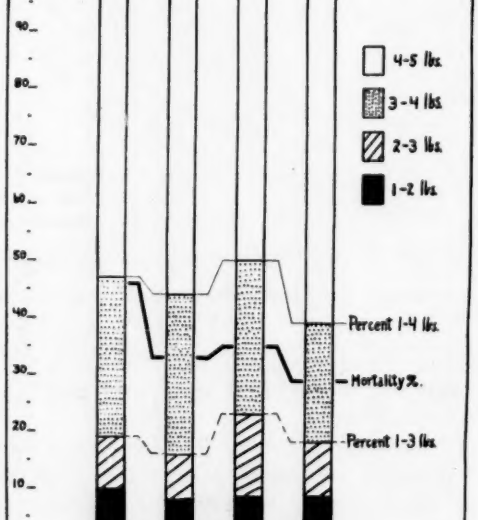

Chart 8.—Relation of distribution of weight groups to general mortality by years.

there has been a better understanding of the safest method of accomplishing the actual delivery of a premature infant in the presence of the various complications of pregnancy.[3]

CONCLUSION

The premature infant mortality and the stillbirth rate can be reduced through control of the time at which pregnancy shall be terminated.

270 Commonwealth Avenue.

ABSTRACT OF DISCUSSION

DR. FRED L. ADAIR, Chicago: Despite popular ideas that seventh month infants are more apt to survive than those born at eight months, it is well established that the more mature the fetus the better are its chances of survival. Weight, however, cannot always be taken as a criterion of maturity, though in general the statement is correct. It is not clear from the presentation of Dr. Clifford what other factors may have entered into the reduction of the mortality of these premature infants. The method of delivery has much to do with the death or survival of infants and especially of those which are premature.

4. Irving, F. C.; Berman, Saul, and Nelson, H. B.: The Barbiturates and Other Hypnotics in Labor, Surg., Gynec. & Obst. **58**: 1 (Jan.) 1934.

Each week adds to the maturity as well as to the weight and length of the fetus. It seems to me that the length of the fetus is, as a rule, a better index of its maturity than the weight. Scammon and Calkins have presented numerous formulas for estimating body weight from various measurements of the fetus. X-ray methods, so far as they deal with the measurement of distances from tube to plate and the stereoscopic shift, are mathematically accurate, and intervening points can be accurately determined. The difficulty is to locate the points on the fetal head that one desires to measure. This can be done with approximate accuracy from the occipitofrontal diameter and the body length, and approximate menstrual age can be deduced. I use the method described by Hodges. It seems to me that the figures given by the author for weight gain during the ninth month are somewhat high even for infants of normal mothers. Physicians cannot and should not attempt to classify, treat or determine the time to interrupt pregnancy on the basis of blood pressure alone. It is unlikely that the author intended to convey any such idea. I should like to have my view clearly understood that the continuation of a pregnancy in a woman with a toxemia does progressive and irreparable damage of greater or less degree to her tissues and organs, and the longer the pregnancy is allowed to continue the more serious is the damage. One has to evaluate the relative importance of fetal and maternal lives. The so-called toxemias are not all alike in their effects on the mother, the fetus or the placenta, and there should be an attempt to make some differentiation between these various disorders. I am of the opinion that one cannot ordinarily temporize safely in the presence of genital bleeding during pregnancy and that a diagnosis should be made. Too many maternal and associated fetal fatalities result from the failure to recognize promptly the cause of the frequent warning bleeding of placenta praevia and ablatio placenta. I agree with the author that premature infant mortality and the stillbirth rate can be reduced through control of the time of terminating pregnancy. I should, however, like to emphasize the fact that in general any induction of labor increases the hazard for the mother and the fetus.

DR. JULIUS H. HESS, Chicago: I am certain that Dr. Adair welcomes the pediatrician into the field of obstetrics. In his clinic the babies go into the pediatric service shortly after birth. I am certain that a much lower morbidity has resulted from such cooperation. There is no gainsaying the fact that every half pound or pound added to the birth weight of the premature infant advances its opportunity not only for life but for a reduced morbidity. As the means are at hand for preventing refrigeration of infants, a proper nursing corps and food that is believed the best for this type of infant, breast milk, it is necessary to go back of the arrival of the infant in the hospital or the home, or the transfer from the obstetric department to the premature infant station, in order to reduce mortality, and that is exactly what has been attempted here. In a group of 1,623 premature infants, 238 of a total of 489 deaths occurred in the first forty-eight hours after admission to the station. In obstetric hospitals in which only premature births delivered in their own wards are received, the forty-eight hour death percentage would be higher, as most of the very small ones born in homes do not live long enough to be brought to the hospital. I was interested in the question of the different types of delivery, as regards not only the death rate but the factors that might influence the death rate. In the 1,623 brought to the station from 1922 to Jan. 1, 1934, in whom there were 489 deaths with 386 autopsies, there were the following: Induced labor with cervical dilatation, occurred eighteen times with six deaths, or 33⅓ per cent. All six infants had intracranial hemorrhage. Precipitate labor took place sixty-three times, with twenty deaths, or 31.7 per cent. Sixteen of the twenty had intracranial hemorrhages. There were sixty-three sections, with nineteen deaths, or 31.6 per cent. Two died with intracranial hemorrhages. This was a rather surprisingly low number. There were twenty-six spontaneous breech deliveries, with six deaths, or 23 per cent. Four infants had intracranial hemorrhages. There were eleven cases of version and extraction with one death, or 9 per cent, and that infant had an intracranial hemorrhage. Of twenty-three breech extractions, two infants died, or 8.7 per cent, one with intracranial hemorrhage. I was surprised by these facts, because I had always felt that next to forceps extraction the breech extraction offered the greatest danger so far as intracranial hemorrhage was concerned. Forceps, high or low, were applied in 135 cases. Undoubtedly 90 per cent of these were low forceps. Nine infants, or 6.6 per cent died, and four had intracranial hemorrhages.

DR. STEWART H. CLIFFORD, Boston: Although the subject of applying the knowledge of the size of the fetus to practical obstetrics is new, it has become quite complicated. It is impossible to cover in a fifteen-minute period all the aspects of this subject that have developed. Therefore, in this presentation I limited the discussion to the time at which pregnancy should ideally be terminated. In another presentation, to which Dr. Hess has referred, I attempted to analyze the influence of the various types of delivery and complications of pregnancy on the premature infant mortality. The details of the report can be obtained in the *Journal of Pediatrics* for August 1934. In connection with the premature infant mortality associated with the method of delivery, I found the surprising fact that cesarean section, which is ordinarily thought to be the method of choice, actually carried the highest mortality of 44 per cent; delivery by breech extraction was next. The safest method for the delivery of the premature baby was found to be associated with low forceps application and the use of a wide episiotomy. In this case the mortality rate was 11 per cent. I agree wholeheartedly with Dr. Adair in his attempt to emphasize the value of skeletal measurements as a reliable index of fetal maturity as opposed to birth weight. The birth weight is extremely unreliable as an index of fetal age. Some day I hope the body length or the occipitofrontal diameter will be just as significant to the practitioner in this respect as the baby's weight. However, at present if I say that the baby has an occipitofrontal diameter of 11.5 cm. or that it is 47 cm. long, this probably means nothing at all to the listener. On the other hand, if I say that the baby in utero probably weighs 5 pounds, or at least weighs a minimum of 4½ pounds, one can immediately visualize the infant and plan accordingly.

THE SURGICAL TREATMENT OF CARCINOMA OF THE BRONCHI AND LUNGS

WILLIAM FRANCIS RIENHOFF JR., M.D.
AND
EDWIN NASH BROYLES, M.D.
BALTIMORE

In the treatment of malignant tumors of the lung and bronchi the same fundamental principles should be observed that are followed in the management of such tumors elsewhere in the body; namely, the removal of the entire organ and involved lymph glands when that is possible. Whenever feasible, this policy has been carried out regarding other organs and structures, following the advance in surgical views and technic. Total ablation by almost standardized operative methods has been developed for the breast, rectum and thyroid, to mention only a few, and is today a recognized procedure the world over. Partial removal of a breast for carcinoma would today be an unheard of procedure; in the instance of the lung, because of its unique anatomic structure, to be referred to later, a removal of the entire organ rather than a portion of it seems to be still more a requisite demand. Another point is that, owing to its structure and function, the total removal of the lung for even a benign tumor may be required as a measure to

From the Surgical Clinic of the Johns Hopkins University School of Medicine and Hospital.
A preliminary report of the operative technic appeared in the Bulletin of the Johns Hopkins Hospital **53**: 390-393 (Dec.) 1933.
Read before the Section on Surgery, General and Abdominal, at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 13, 1934.
Because of lack of space this article is abbreviated in THE JOURNAL. The complete article appears in the authors' reprints.

save a life, a fact demonstrated by one of the cases herein reported.

In the past, supposedly insurmountable technical difficulties have played a major rôle in retarding the progress of surgical intervention with bronchial and pulmonary malignant tumors. As in the surgical treatment of malignant conditions elsewhere in the body, so it will probably be of those in the lungs; namely, that a number of operative procedures will be suggested, developed and modified over a period of years until finally fairly standard methods will be evolved and accepted by virtue of their outstanding merits, applicability and effectiveness in various types of cases and conditions, in the hands of different operators and over a prolonged period of trial. It is not possible at this early stage in the development of total pneumonectomy to anticipate all possible technical pitfalls and immediate as well as remote consequences that no doubt will not be wanting.

It would seem advantageous, therefore, to present from time to time for consideration and discussion the experiences gained by those interested in this branch of surgery, for the total removal of the entire lung bids fair to become eventually the operation of choice in the surgical treatment of malignant tumors of the bronchi and lungs. The development of a rational, safe and thorough operative procedure is therefore of prime importance. It is with this idea in mind that we present for consideration the limited experiences of two successful instances of pneumonectomy. In this brief report of the two cases, attention is called alike to the preoperative preparation and the operative technic employed, to the postoperative follow up stage of the respective patients and, finally, to the critical discussion. It is of course impossible in the space allotted for the presentation of this report to discuss in detail the development of the operative treatment of malignant lung tumors and the interesting experiences and views of those contributing to this field of surgery.

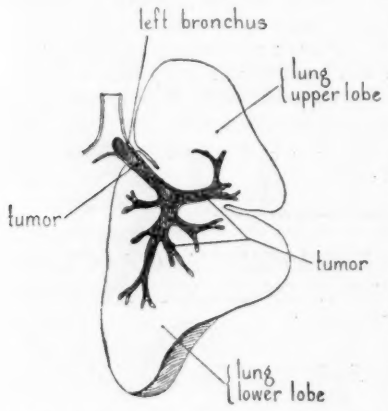

Fig. 1 (case 1).—Diagrammatic sketch of the left lung, showing tumor, an intrabronchial fibropapilloma, filling entire bronchial tree.

REPORT OF CASES

CASE 1.—D. Y., a white girl, aged 3 years, admitted to Harriet Lane Home, Johns Hopkins Hospital, June 19, 1933, had been perfectly well until April 24, when she became ill and vomited at frequent intervals during the day. The pulse was slightly accelerated, the temperature 100.6 F., the respiration rate from 38 to 40. Examination of the chest revealed pronounced dulness on percussion of the entire left side of the chest posteriorly, which extended forward to the anterior axillary line. This dulness was especially marked over the scapular region. Over this entire area of dulness there was marked bronchial breathing. The patient was asymptomatic; there was no cough, and within forty-eight hours her pulse, temperature, and respirations became normal. The physical manifestations in the chest persisted and, in addition, within the next few days the dulness had extended over the entire anterior portion. The rectal temperature for the following two weeks showed an elevation to 99 and 99.6 F. Aspiration of the chest was performed three times, twice unsuccessfully, and at one time 0.5 cc. of a thin, turbid fluid was obtained which on bacteriologic examination showed a few short chain streptococci.

Roentgen examination revealed no fluid in the pleural cavity, but the entire left side of the chest was hazy.

The heart was normal, displaced only slightly to the left. The blood pressure was 110 systolic, 82 diastolic.

Bronchoscopic examination, done by Dr. Edwin N. Broyles, revealed a small, glistening, yellowish tumor mass, completely filling the left bronchus and protruding well into the trachea toward the right side. A biopsy was possible and a diagnosis of spindle cell fibrosarcoma was made. Iodized poppy-seed oil could not be forced into the left primary bronchus. (Figure 1 shows the location of the tumor.) Since after several attempts it became evident that the tumor could not be resected through the bronchoscope, the patient was operated on, July 24, at which time a total left pneumonectomy was performed. The operation was carried out as described under operative technic.

Her convalescence was entirely uneventful. The temperature and pulse were never elevated after operation. The child was up on the fourth day and about the ward; the wound healed by first intention, and there was never the slightest evidence of infection in the wound or chest at any time. After operation the child was at no time short of breath or cyanotic, nor did she cough. The pathologic examination of the specimen revealed that the tumor was an intrabronchial fibropapilloma, which had arisen in the periphery of the lung and grown centripetally along the smaller bronchi into the left primary bronchus and trachea. The entire bronchial tree was completely filled with a tumor mass, which was everywhere covered with bronchial mucous membrane (fig. 1).

The patient has since returned several times for examination, which shows both on percussion and on auscultation that the heart and mediastinum have been displaced not only to the left but also posteriorly; that undoubtedly there is a large lappet of lung which has passed through the anterior mediastinum, displacing the heart posterior and to the left, and also that the lung in all probability has passed through the posterior mediastinum. The injection of iodized oil has demonstrated by roentgenograms (fig. 7) that the main bronchus has healed completely and that the right lung has been expanded by compensatory dilatation and has migrated into the left thoracic cavity anteriorly, and probably also posteriorly. The heart shows no abnormalities. The child is perfectly well at present, almost a year since the operation. (fig. 8). The chest shows no deformity whatever, and the excursion of the left diaphragm is almost as great as that of the right. The expansion on the two sides of the chest is practically equal and symmetrical.

CASE 2.—*History.*—H. M., a woman, aged 24, complained of a constantly increasing sensation of pain in the left lower part of the chest anteriorly at about the level of the fourth rib. She located the pain in the precordial region and felt as if it was deep seated, a throbbing type of pain not associated definitely with respiration or cough.

In the summer of 1932 there was hemoptysis estimated at about two cupfuls of fresh blood, which she could feel coming up from low down in the chest after hearing a soft bubbling noise. Three months later she again coughed up a few mouthfuls of blood, and for the last two months she had had several small hemoptyses. Five days before admission the patient coughed up about a cupful of thick, dark blood four times during the day. Since that time she had coughed up a little constantly. She had some pain on taking a deep breath and on moving, at about the level of the fourth rib, as pointed out by the patient herself.

Examination.—The physical examination was essentially negative. The lungs were perfectly clear and no râles were heard. A roentgenogram of the chest revealed nontuberculous infiltration at the bases of both lungs.

The laboratory tests were negative.

Bronchoscopic examination, made by Dr. Edwin N. Broyles, showed a tumor about 1 inch below the first branch in the left bronchus. It seemed to be a small polyp, but only the apex of the tumor could be seen through the bronchoscope. Attempts at removal resulted in considerable bleeding. Attempts to remove the tumor through the bronchoscpe and by fulguration were found to be unsuccessful after numerous trials. High

voltage roentgen therapy was likewise unsuccessful. Following bronchoscopic examination there was a great deal more pain in the left anterior portion of the chest at about the level of the fourth rib. Pathologic diagnosis of the particles removed by biopsy at the time of the bronchoscopic examination was carcinoma. An injection of iodized oil was made on the left side and a typical block found at the beginning of the left lower primary bronchus, just distal to the ventral bronchus. The iodized oil welled back into a rectangular mass.

The patient was admitted to the hospital, October 25, and an artificial pneumothorax was begun. November 1 the lung was practically collapsed. November 3 a left pneumonectomy was performed according to the technic described.

Preoperative Preparation.—Beginning two weeks prior to operation, the left lung was compressed by a gradually induced and finally complete artificial pneumothorax. The patient thereby became accustomed to breathing only with the noncollapsed lung and so established, before operation, a respiratory and circulatory equilibrium under altered intrathoracic pressure.

Operative Technic.—Tribrom-ethanol, 90 mg. per kilogram by rectum, thirty minutes before operation and nitrous oxide and oxygen as a supplementary anesthetic were administered. Intratracheal anesthesia was not resorted to. The patient, accustomed to breathing with one lung, did not seem to be affected by the opening of the chest. The inconvenience of inserting a tube in the trachea was thereby obviated and also an almost unavoidable contamination of the trachea and bronchi with infectious matter.

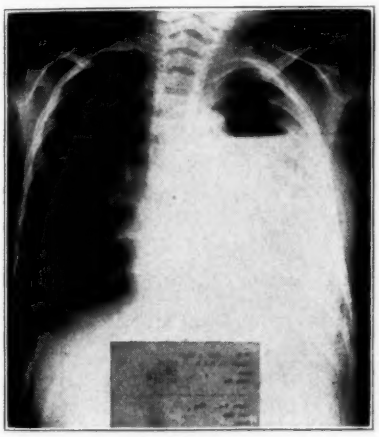

Fig. 2 (case 1, one week after operation).—Air in the apex of the left thoracic cavity and definite fluid level; slight scoliosis to the left side; increased size of the right thoracic cage in comparison to the left. Intercostal spaces on the right are larger than on the left.

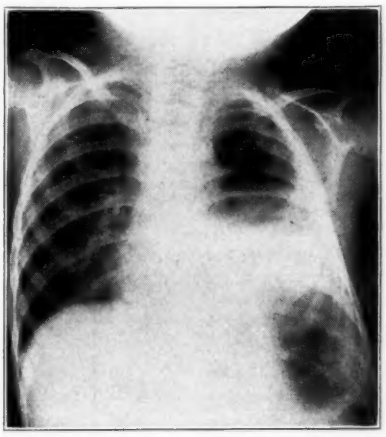

Fig. 3 (case 1, two weeks after operation).—Practically all the fluid absorbed from the left thoracic cavity and mediastinum being pulled over to the left. Fibrous bands may be seen forming fenestrated labyrinthine cavity on the left side. Scoliosis is somewhat more pronounced. Intercostal spaces are relatively very much reduced in comparison to the right side. The heart is in the transverse position and the diaphragm somewhat elevated.

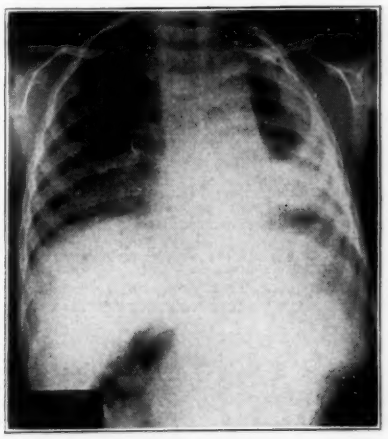

Fig. 4 (case 1, on discharge from the hospital).—The trachea is somewhat displaced to the left, the fibrous adhesions filling the left thoracic cavity, and the heart and mediastinum are pushed over to the left side. The diaphragm is not quite as elevated as in figure 3. At this stage, physical signs indicated that the right lung had already migrated into the left thoracic cage. It is to be noted here that the intercostal spaces on the left side more nearly approximate the right side than at any time previously. The diaphragm is also in a much more normal position. These changes suggest that, as the left thoracic cage fills with expanding right lung, respiratory movements may tend to normal and approximate those of the normal respiratory excursion of the diaphragm and the thorax.

The patient's position on the operating table was the semirecumbent one, with the right side down. The trunk was rotated toward the right at an angle of about 45 degrees, the left arm being raised over the head, and the head of the table elevated to 45 degrees. In that way the best exposure of the anterolateral surface of the left side of the chest was obtained, little if any weight being thrown on the right side and the diaphragm being simultaneously relieved of the weight of the underlying viscera.

After the usual iodine application to the skin and draping of the operative field, an incision was made in the third intercostal space, parallel to the third and fourth ribs and extending from the costal cartilages to the anterior axillary line (fig. 9). The fibers of the pectoralis major were divided along their course, the internal intercostal muscles cut directly across (fig. 10). The parietal pleura herniated up between the ribs as a result of the increased intrathoracic pressure (fig. 11), and after its incision air escaped with a hissing sound. The third and fourth ribs were merely spread apart with a self-retaining retractor (fig. 12). The anterior approach was chosen, because it gives a far better exposure of the hilus; the pulmonary artery and veins lie in front of the left primary bronchus, and individual ligation of these can safely and easily be accomplished in their anterior presentation.

Ligation of the vessels offered no difficulty in either of these two cases. The pulmonary artery running in front and rather on top of the left bronchus was isolated by blunt dissection and clamped just midway between the reflection of the pericardium and the primary division of the artery (fig. 13). The proximal arterial stump was then ligated with oiled braided silk and the mouth of the vessel transfixed with medium waxed silk. The superior and inferior pulmonary veins were then isolated in turn and also transfixed with medium waxed silk.

In case 1, in which operation was done July 24, the left primary bronchus was cut across with the scalpel and the lung removed from the chest (fig. 14). The cartilaginous rings of the bronchial stump were cut at various points in their circumference in order to do away with their springlike action, which normally tends to maintain the patency of the bronchus. The bronchus was closed with a continuous suture of number 1 plain catgut in the mucosa, supported by interrupted medium silk sutures in the wall of the bronchus. In case 2 (fig. 13), in which operation was done November 3, the technic was the same, but owing to the location of the tumor (fig. 15) it was possible to cut across the first ventral or superior branch and then incise the primary descending bronchus diagonally. There was very little loss of blood during the operation. The pulse rate and blood pressure remained unaltered. The operations caused practically no shock to the patients and were not unusually prolonged, thirty minutes being required for the first and one and one-half hours for the second. The spread ribs were reapproximated with number 2 silver wire, and the pectoral muscles, subcutaneous tissue and skin were sewed up with interrupted fine silk sutures (fig. 16). In both cases the chest was closed without drainage.

Postoperative Course.—As the convalescence differed somewhat in the two cases, and as each one offered especial points of interest, they will be considered separately. In the child, the pulse, temperature and respirations were undisturbed after the operation. One week following operation, a diagnostic thoracentesis yielded serosanguineous fluid, the culture of which proved to be sterile. Series of roentgen examinations of the chest following operation revealed first a gradual accumulation of fluid and some air in the left thoracic cavity. When after

two weeks that had almost completely disappeared, the formation of many delicate bands of fibrinous and fibrous adhesions running from the mediastinum and pericardium to the left chest wall and forming a number of small pockets with different fluid levels would be observed (figs. 2, 3, and 4). The chest cavity seemed to be honeycombed with an organizing fibrinous mass containing multilocular spaces of a labyrinthine aspect. The diaphragm became more elevated and immobile and the heart and mediastinum shifted constantly more to the left side. At this time the right thoracic space was definitely by measurement larger than the left and was expanding vigorously, thereby exaggerating the enlargement. The bands of fibrous tissue seemed gradually to contract, becoming shorter as the mediastinum moved toward the left chest wall. In the first postoperative month the respiratory movements of the left side were absent and those on the right side became increasingly more conspicuous. An asymmetry of the thorax had evidently also developed by this time. The left thoracic space was diminished in its anteroposterior and lateral diameters, the intercostal spaces were markedly narrowed, and a scoliosis developed toward the left side (figs. 3 and 4). From this time on until the patient's discharge, the right lung as the result of compensatory dilatation began to extend to the left side and fill up the empty space that remained. A lingula of lung was seen to extend across the anterior mediastinum in front of the pericardium, pushing the heart toward the left chest wall and then posteriorly, as the expanding anterior lappet of lung became larger. Finally it inserted itself more and more in front of the heart, so that at present the point of maximum impulse is approximately in the midaxillary line. The large anterior lappet can readily be seen in the roentgenograms of the lateral chest view (fig. 5). The recent injection of iodized oil also proved this extension of the right lung to the left thoracic cavity (fig. 7). Physical signs on percussion and auscultation are further corroborative not only of the presence of lung tissue anteriorly in the left side but also of having penetrated the posterior mediastinum, coming across between the spinal column and the heart, below the arch of the aorta. Simultaneously with the filling of the left thoracic space, the respiratory excursion of the thorax and to a less extent of the diaphragm has returned. The diaphragm does not descend as far on the left as on the right side, but the movement of the thorax is apparently equal on the two sides. The asymmetry present before the filling of the chest with the extending right lobe disappeared along with the scoliosis. No empty space exists at present in the left thoracic cavity (fig. 6).

Fig. 7 (case 1).—Iodized oil injection made by Dr. E. N. Broyles, April 27, 1934, ten months after operation, showing stump of left primary bronchus completely healed. The patient regurgitated some iodized oil and swallowed it, so that a small bit entered the esophagus and stomach. The right bronchial tree is shown, and on close inspection it can be seen that the ventral as well as the dorsal branches of the right primary bronchus cross the midline well into the left thoracic space. This shows a great deal more plainly in the roentgenogram than it does here.

The convalescence of the second patient has differed in some quite obvious ways. Following operation the pulse rate fluctuated somewhat in correspondence with an elevation of temperature, which is shown in figure 17. The changes in the roentgenograms were identical with those of the first case; i. e., the chest filled with fluid and was gradually absorbed in the course of from two to three weeks, presenting the same type of fibrous bands resulting in the formation of multilocular spaces. The lateral view showing these spaces containing different fluid levels is shown in figure 18.

Frequent exploratory thoracenteses revealed a dark red fluid containing some red and white blood cells but no infection. Never more than from 50 to 100 cc. could be recovered at a time. During the third week the patient, when turning on the right side in the morning (she slept on her back), would cough up from 25 to 50 cc. of this fluid. This expectoration persisted until about a week before her discharge, seven weeks after operation. Since that time it has not recurred. Roentgenograms at that time showed a small amount of fluid in a pocket, evidently connected with the left bronchus. The injection of iodized oil, April 25, corroborated this observation (figs. 19 and 20). The remainder of the left thoracic cavity is nearly filled out, by the displacement of the heart and mediastinum to the left and the elevation of the diaphragm. The left thoracic cage, if not entirely obliterated, is narrowed in all diameters; the intercostal spaces are likewise diminished, and through the formation of fibrous adhesions a space occupying fenestrated labyrinth of connective tissue has been created. In successive roentgen studies the walled off pocket connected with the bronchus is becoming smaller and will evidently disappear with an early closing of the now minute opening. Repeated readings of the intrathoracic pressure have all been zero, as could be expected because of a communication with the bronchus. Physical signs suggest further that the right lung has extended over to the left side, especially in the anterior and superior portion of the left side of the chest, and is occupying that space evacuated by the shift in the mediastinum to the left. Thereby the volume of the right thoracic space has been increased and also the right lung, which fills it (fig. 21). This aspect is supported by the steady increase in vital capacity since operation; i. e., from 1.7 to 2.4 liters. The normal for this patient is 3.2 liters. Unfortunately, enough iodized oil was not introduced at this time to determine this fact. It will be interesting to note whether a negative pressure develops in the left thoracic cavity simultaneously with the closure of the bronchus and if so whether, as is very likely, respiratory movements will return with the filling up with lung tissue of the left thoracic cavity.

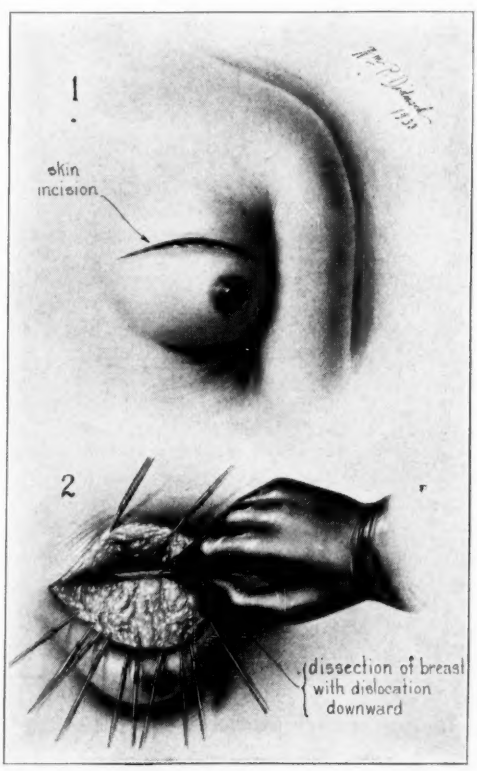

Fig. 9.—Operative technic.

This train of events was noted in case 1. Patient 2 had a perfect functional result (figs. 22 and 23). She is the picture

of a very active young married woman in excellent health. It is interesting to note in this case that in spite of numerous colds during the winter the patient did not develop an infection of the cavity in communication with the bronchus. This communication is probably quite small. The patient has not coughed at all except for two days following the injection of iodized oil,

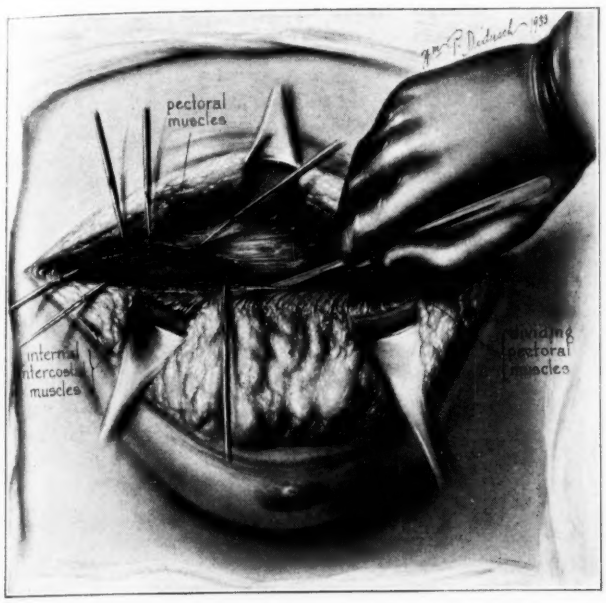

Fig. 10.—Operative technic.

which was allowed to run down the pharynx and which became undoubtedly infected. Other than that, she has been without morbid symptoms of any kind since operation and has been very active.

COMMENT

Incidental to the development of an operative technic for the removal of the thoracic esophagus, extending over a period of the last five years, it soon became evident that compression of the lung by an artificial pneumothorax would serve two very valuable purposes; i. e., first the patients were able to adapt themselves to breathing with the noncollapsed lung and also adjust themselves to the altered conditions of intrathoracic pressure that would exist during and after the operation. Thus the shock attendant on opening the pleural cavity was negligible. The second purpose was to remove the lung mechanically as far as possible from the operative field so as to give the maximum exposure of the mediastinum with the minimum handling of the lung. The relative simplicity of removing a collapsed lung under these conditions was at once evident, and therefore artificial pneumothorax was employed as a part of the preoperative preparation at the first opportunity. Other advantages of the preoperative pneumothorax are that in all probability the blood and lymph flow is markedly reduced, and intrathoracic exposure is very much increased, as the collapsed lung occupies a surprisingly small amount of space. Thus the operative removal can be accomplished through a relatively small incision in the chest wall; again, the necessary handling of the lung is reduced to a minimum and the opportunity for massaging emboli from a malignant tumor is lessened. It is to be recalled that tumors of the lung grow quite frequently along the pulmonary veins as well as the lymphatics.

The approach to the hilus of the lung through an incision in the anterior thoracic wall was selected because from the anatomic as well as the surgical standpoint it is the most rational and simplest route. The hilus of the lung is thus completely exposed, so that an anatomic dissection may be deliberately and carefully performed. Thus the pulmonary artery and veins may be independently and securely ligated. These vessels lying essentially ventral to the main or primary bronchi are dispensed with in the beginning of the operation, thus insuring against the loss of any considerable amount of blood, and undoubtedly decreasing the probability of air emboli by way of the pulmonary veins. A secondary but still an important consideration is the ligation of the pulmonary veins before the lung is handled, preventing, of course, the escape of carcinomatous emboli into the peripheral arterial circulation through the left auricle. An excellent exposure to the mediastinum may be obtained at the level of the third interspace anteriorly, which permits of a dissection of not only the lymph glands of the hilus but also those of the posterior mediastinum as well. (Two neuromas of the mediastinum on the right and left side have been removed recently, this approach being used with excellent exposure). The anterolateral incision in the third interspace, from the parasternal to the anterior axillary line, permits without even so much as fracturing or cutting a rib, by simple spreading of the incision, ample exposure from the diaphragm to the apex of the thoracic cavity. In this manner not only is time saved but the added procedure of resecting ribs and dividing muscles is done away with.

The closure of the bronchus was done in these cases in a simple way with as little damage to the tissues as possible. The left primary bronchus was cut completely

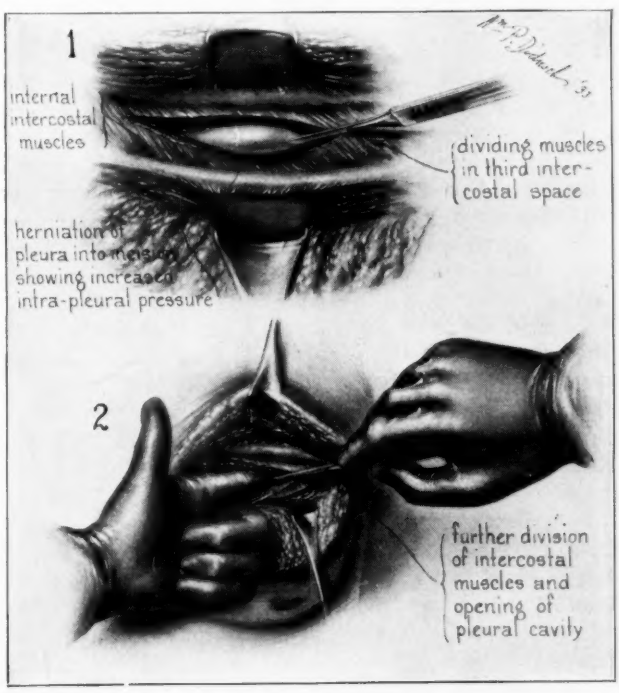
1
internal intercostal muscles
dividing muscles in third intercostal space
herniation of pleura into incision showing increased intra-pleural pressure
2
further division of intercostal muscles and opening of pleural cavity

Fig. 11.—Operative technic.

across with a scalpel in the first case just distal to the bifurcation of the trachea. The spring-like action of the cartilaginous rings was done away with by cutting the ring at several points in its circumference. The mucosa was sutured with a continuous suture of number 1 plain catgut, while the wall of the bronchus was

sutured with interrupted silk sutures. The bronchial stump healed by first intention, as shown in figure 7. In the second case, the tumor being located just distal to the first ventral branch of the left primary bronchus (fig. 15), the incision was carried through the inferior portion of the first ventral branch and then across the descending primary bronchus, the idea being that the

Fig. 12.—Operative technic.

small first ventral branch might be closed independently of the large descending one and proceeding thus on the hypothesis that a small bronchus would more readily heal than a larger one. As a matter of fact the size of the large descending branch was very little reduced on the left side by the departure of the first ventral branch, remaining about the size of one's index finger and being equal in size to the bronchus in case 1. The result shown by the injection of iodized oil is almost self explanatory. The large bronchus healed by first intention while in the smaller one remained an opening the size of a thread. The same technic of closure was used in both cases. In the second case infection occurred prior to operation and was due to a bronchiectasis distal to the tumor and as a result of fulguration of the tumor through the bronchoscope.

Figure 20 demonstrates the walling off, pocket forming process about the end of the bronchus, which has been described. These results at least suggest that the bronchus may be securely closed in the human being and, further, if a small opening should occur after some days or weeks, that a walling off process may take place which makes this opening into the bronchus inconsequential. A small bronchus should probably not be left attached to the primary bronchus, for the reason that the circulation in the bronchial artery to such a small bit of tissue is more than likely disturbed in the closing of the main bronchus. Cauterization of the bronchial stump in any form is apt to cause a slough and prevent primary healing, or it may become a nidus of infection and should therefore be abandoned. Mass ligatures or tourniquets about the hilus are also harmful in that the bronchial artery is blocked far proximal to the point at which the bronchus is cut across, and thus the bronchus for some distance is deprived of its circulation. Healing is thus retarded, to say the least, if not entirely prevented. In cases in which the primary bronchus is invaded toward the trachea, as in the first case, it would be impossible to cut across the bronchus proximal to the growth if the hilus should be tied off in a mass ligature.

Thoracoplasty is certainly unnecessary in pneumonectomy. The first patient fortunately had the juvenile resilience to compensate completely for the loss of an entire lung. This case may be considered from every point of view the ideal result, which for an older person would be unobtainable or only approximately so, as in the second case. Nevertheless, the maintenance of the normal shape and rigidity of the thoracic cage is a most important factor in the compensatory restitution. It serves somewhat as a sheet anchor to which the heart and mediastinum are attached by fibrous bands, probably profoundly influencing the intrathoracic pressure relations by maintaining the patency of the chest cage. What could be more upsetting to the cardiorespiratory mechanism than a flail wall to one side of the thoracic cage that moved in a large excursion with each respiration? Surely the ultimate effect of such a fluttering chest wall must be eventually deleterious. A sterile small pneumothorax is harmless, yet even that condition will be rare, for the cavity remaining in the thorax after the maximum compensatory dilatation of the

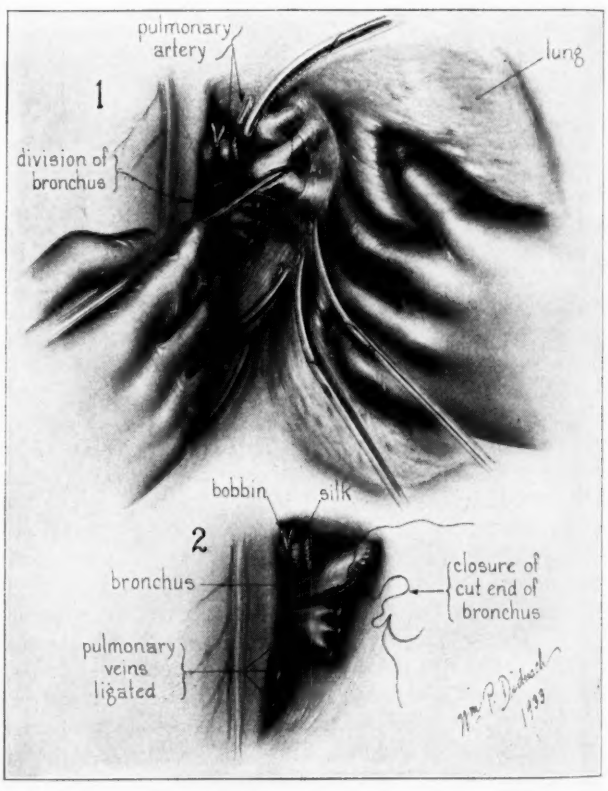

Fig. 13.—Operative technic.

remaining lung will gradually obliterate itself by the formation of multiple fibrous bands creating a veritable fenestrated labyrinth of many small spaces. (In eight consecutive cases of one stage lobectomies for bronchiectasis, in the presence of infection, the same process of obliteration has been observed. In none of these has

thoracoplasty been found necessary.) Likewise in such cases should interference with the function of the phrenic nerve be given up, for the piston action of the diaphragm and its effect on intrathoracic pressure is a valuable adjuvant in the compensatory restitutional mechanism.

As far as could be ascertained from clinical examination, roentgen examination and thoracentesis, the compensatory restitutional mechanism consisted of the following steps: The remaining thoracic cavity, after removal of the lung, gradually fills after a

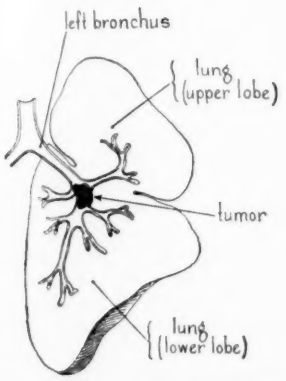

Fig. 14 (case 1).—Method of closure of left primary bronchus.

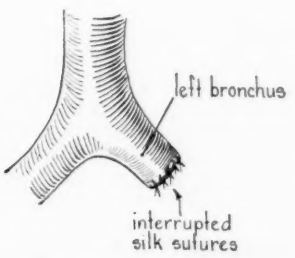

Fig. 15 (case 2).—Diagrammatic sketch showing relative position of tumor.

period of from forty-eight to ninety-six hours with an effusion of bloody serum possibly mixed with some old blood, clotted and unclotted, from the operation. This semifluid or fluid medium in addition to the entrapped air approximately fills the chest cavity. The latter rises to the apex of the cavity. Displacement of the mediastinum is by this means prevented in the first few hours or even days following operation. If the fluid in the cavity is sterile or even mildly infected (i. e., ability to obtain a growth but not pus formation), organization begins immediately and fibrous tissue strands develop from the costophrenic sinus and pericardium from below up much like the "sealing off" process occurring after prolonged pneumothorax in cases of pulmonary tuberculosis. These strands of fibrous tissue can be seen running from the pericardium and mediastinum to the lateral thoracic wall. The bands divide the thoracic cavity into many small spaces, which are lacelike in appearance and form a veritable labyrinthine network. Different fluid levels can be seen in these spaces. Undoubtedly as these fibrous bands contract they have a tendency to immobilize the diaphragm in a high fixed position but also to limit any respiratory movements of the chest wall and to pull the entire mediastinum and heart to the affected side. This readily explains the retraction of the interspaces and the ribs themselves, thus narrowing not only the lateral but also the anteroposterior diameter of the chest. Following the mediastinum evacuating its central position, the volume of the right thoracic cage is by this much increased and a compensatory dilatation of the remaining lung occurs simultaneously. If the mechanism ceases at this point the vital capacity is increased but moderately, as in the second case; but if a negative pressure is developed in the affected thoracic cavity the remaining lung will undergo further compensatory dilatation and fill the remaining empty space in the operated side, as in case 1. With this filling the respiratory movements seem to return. Whether or not the remaining lung advances to fill the empty space left by the operation seems to depend entirely on the pressure conditions in the remaining space; if negative, the remaining lung will expand and fill the remaining space; if positive, the remaining lung will not hyperexpand or advance.

In treating malignant disease of the bronchi and lungs it is to be recalled that the spread of the growth may be (*a*) along the bronchi by continued growth or by bronchial embolism, (*b*) into the pulmonary veins and then carried into the left heart and peripheral arterial system without passing through the lung capillary system, (*c*) by direct extension of the growth from one lobe to another as the result of an incomplete anatomic fissure, (*d*) by anterograde and retrograde invasion of the lymphatics along the bronchi, involving the intralobar and interlobar glands as well as those of the hilus, and if the fissure is incomplete involving the lymphatics of the adjoining lobe.

For these reasons it would seem likely that total pneumonectomy would be followed by a higher percentage of ultimate cures than partial pneumonectomy, while at the same time in many instances it would be technically less difficult.

CONCLUSION

The important points of the method of operation here discussed are:

1. The preliminary collapse of the affected lung.
2. The anterolateral incision and approach.
3. The isolation and separate ligation of the pulmonary vessels.

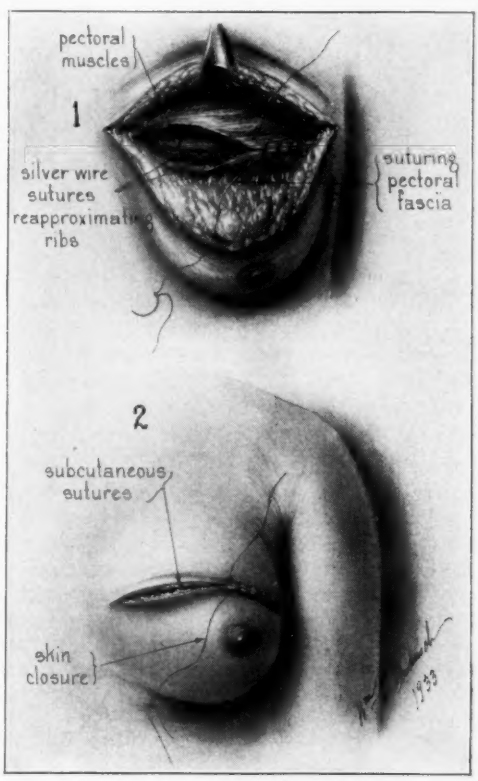

Fig. 16.—Operative technic.

4. The primary closing of the bronchus after the cartilaginous spring has been interrupted.
5. The primary closing of the chest wall without drainage.
6. The prevention of postoperative sloughing and formation of bronchial fistulas.

7. The avoidance of resection of ribs and especially of thoracoplasty with its consequences.

8. The prevention of shock.

9. The comparatively short duration of operation and early convalescence.

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ABSTRACT OF DISCUSSION

DR. EVARTS A. GRAHAM, St. Louis: Primary carcinoma of the bronchus is an exceedingly important subject, because it constitutes approximately 10 per cent of all cancers. It is possible to diagnose nearly all cases at a relatively early stage if the possibility of the condition is kept in mind. Since there have really been no authenticated cases that have been cured by radiotherapy of any kind, the only satisfactory treatment at present is by surgery. Drs. Womack and Tuttle, however, at St. Louis, have been going over some sixty-eight cases of ours with the idea in view of attempting to find out by classification and by other methods whether possibly certain types of cases might be considered to be more amenable to radiotherapy than to operative treatment; this study has not been completed. I congratulate the authors on their success. I am not certain, however, that the method which they used will prove to be the best. I am fearful that in many old and middle-aged subjects a serious kinking of the large vessels will occur by the deflection of the mediastinum sufficient to fill up the empty space unless a thoracoplasty is performed. I wonder too whether emphysema is not likely to occur in the overdistended lung. Again, I feel that the mediastinal glands should be removed and, finally, I think it is safer to provide an air-tight drainage to prevent the serious effects of a tension pneumothorax if the bronchial stump should happen to open, and also to allow egress for the large amount of fluid that always collects. Possibly, future experience will show that although a thoracoplasty may be desirable it can be safely postponed until some time after the removal of the lung. The method of anterior approach, to attack the hilus first, appeals to me as having advantages over the posterior approach in some cases. The uncertainty about whether the tumors were malignant in both of the cases is at this time not so important as it may seem to others, because at this stage of the application of surgery to carcinoma of the bronchus it is important to develop satisfactory methods of attack. The anterior approach seems to me to be an important contribution. My first total removal of the lung for a carcinoma in one stage was a year ago last April on a physician. I performed a thoracoplasty on him also because of the reasons mentioned, and I removed the mediastinal glands. He is perfectly well at present and he has resumed the practice of medicine. There is a strong probability that he will never have a recurrence, because the carcinoma had not penetrated the bronchial cartilage and there was no involvement of the mediastinal glands. The revival of interest in one stage resections of a lobe or of the lung is due to a great extent to the work of Dr. Brunn. The operation of a single stage lobectomy had been practically abandoned in this country until he revived it a few years ago for bronchiectasis.

DR. E. F. BUTLER, Elmira, N. Y.: The authors touched on a relatively new field in surgery—total unilateral pneumonectomy for carcinoma of the lung. In 1923 Lilienthal made a plea for operative intervention in these cases. He could not report any cases from his own series but he called attention to five cases in which operation had been performed in Sauerbruch's clinic. In this country there have been twelve or more cases of bronchogenic carcinoma of the lung in which total unilateral pneumonectomy has been done by Rienhoff, Graham, Alexander, Churchill, Overholt and others. The operative mortality has been low. In times past the diagnosis of carcinoma of the lung was usually arrived at during the course of operation for lung abscess or at autopsy. Now, owing to close cooperation between internist, roentgenologist, bronchoscopist and surgeon, the diagnosis may be accurately determined during the initial study of the case. Womack, reporting from Graham's clinic, has shown that the location of the carcinoma in the lung has a distinct prognostic significance. The nearer the original focus lies to the periphery of the lung, the shorter is the life expectancy; the nearer this focus lies to the hilus, the longer is life expectancy. Pneumonectomy and lobectomy are not yet standardized operations. They are still in the evolutionary stage. As a guide in developing the technic of these operations, there is a wealth of precedent and tradition. Six years ago Brunn disregarded precedent and developed a one-stage lobectomy, which has already won a secure place among the accepted thoracic operations. Rienhoff has also shown a disregard of precedent in his operative approach to the pedicle of the lung and in his indifference to the remaining dead space within the pleural cavity. His results have been good. It must be borne in mind, however, that the factor of suppuration did not enter to any great degree into Rienhoff's cases. When suppuration or sepsis becomes an important factor, the presence of a large empty

Fig. 18 (case 2).—Lateral view of the left thoracic cavity, three weeks after operation, showing different fluid levels in multilocular spaces formed by the space occupying fenestrated labyrinths of connective tissue fibrous bands.

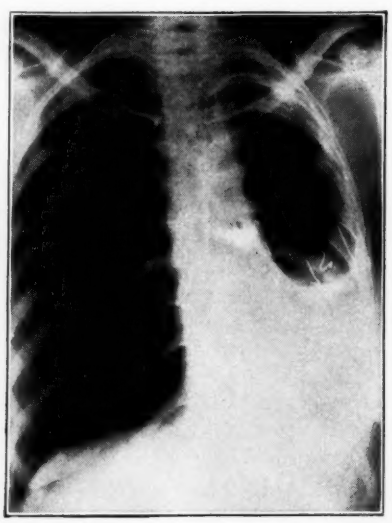

Fig. 19 (case 2).—Iodized oil injection, April 25, 1934, showing filling of dilated end of descending left primary bronchus. A threadlike stream of iodized oil can be seen coursing down over the mediastinal side of the cavity connected with the bronchus. The diminution in the thoracic cage on the left side is similar to that observed in case 1. This was taken with the patient sitting in the upright position. Silver wire sutures have begun to break up in small pieces.

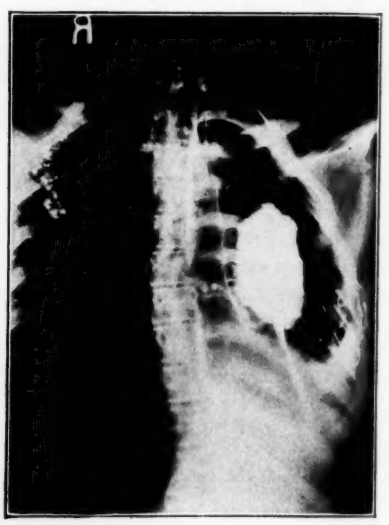

Fig. 20 (case 2).—April 25, 1934, after injection of iodized oil, with patient in recumbent position. Demonstrates size of cavity connected with the small threadlike opening that has persisted since about three weeks after operation. This opening, it is believed, is diminishing constantly.

pleural space might invite an overwhelming postoperative infection. Rienhoff's patients and others operated on by similar technic will be watched with interest to determine the ultimate behavior of the mediastinum and also to determine the ultimate effect on the patient of mediastinal displacement that must presumably occur. These cases may later require thoracoplasty to correct excessive mediastinal shift.

DR. CLYDE ALLEN, Detroit: This presentation represents another milestone in a difficult problem of thoracic surgery. The question of the preliminary pneumothorax I think is of great significance. The necessity of crowding down the lung before attempting to remove it is, I believe, of prime importance. The operation on the phrenic nerve is of importance in reducing the size of the thoracic cavity before a shift of the lung to the other side is allowed. That problem, however, will be worked out as more experience comes. The question of drainage seems to be of great importance. I feel that an air-tight, water-sealed drain is the most satisfactory way of handling this problem. Four years ago I operated on a woman for carcinoma of the lung, which was diagnosed by bronchoscopy previous to the operation. I felt that, in spite of the fact that the patient was 65 years of age and had a rather marked hypertension, an attempt should be made to remove this and it was done in a two-stage operation. That is, a lobectomy was done. That was in 1930. This patient is now 69. Clinically she is well, but two and one-half years after the operation, bronchoscopy disclosed a small nodule in the stump of the right bronchus. A piece of this was taken out and it was found to be carcinoma of the same type, and radium was implanted. Since that time bronchoscopy has been done every six months and radium has been employed. She has had a total of 480 milligram hours.

DR. WILLIAM F. RIENHOFF JR., Baltimore: Fortunately the patients are young, so that it will be possible to settle some of these points if we all live long enough to follow them. I asked to have Dr. Graham discuss the paper because of his very large experience. In regard to kinking of the great vessels, C. S. Levy in 1920 reported the cases in the literature of congenital absence of the lung, including one that had come to autopsy at the Johns Hopkins Hospital, and in no case were there any evidences of disability from kinking of the large vessels of the mediastinum, although one lung was entirely absent. In the event of displacement of the mediastinum the heart is displaced, but this displacement is associated with rotation and I am not certain that there would be a kinking of the vessels. But whether there was or was not a kinking of the aorta and vena cava, it seems that a thoracoplasty might be performed at a later date if and when necessary. I am observing these patients continuously, as one lives in Baltimore and the other just outside. The younger patient has intelligent parents and they watch her closely. Physiologically and clinically they are both perfectly normal. If, and when, they develop signs or symptoms of a deleterious influence due to displacement of the mediastinum, then is the time to consider a thoracoplastic operation, not before. Furthermore, the question of whether a thoracoplasty would correct a disability from compensatory dilatation of the remaining lung is also, I think, open to question. Another thing about the congenital absence of lung is that none of them had emphysema at the time of autopsy. Compensatory dilatation of the remaining lung that Heuer, Reichert and I found after experimental pneumonectomy on dogs is an entirely different entity from a pathologic emphysema. It was found that the elastic tissue was not interrupted in the remaining lung after pneumonectomy. I can see no reason for draining the operated side of the thoracic cavity if it is sterile; but if it is not sterile and there is pus formation, I think that in twenty-four hours or forty-eight hours one may consider air-tight drainage through the incision or, if necessary, through an additional stab wound. If the cavity isn't infected I believe that through the clotting of blood and the presence of a supernatant serosanguineous fluid organization will occur with the formation of fibrinous and fibrous bands, which will transform the chest from a unilocular to a multilocular space. It is likely that the formation of fibrous tissue bands will occur more rapidly if the chest is full of some medium, a fluid medium or a semifluid one, than if the cavity is emptied by drainage. It is my opinion, which may be entirely wrong, that a drainage tube is a hazard and if it is left in long enough, over forty-eight hours, infection will occur along the tube in spite of all precautions. Dr. Graham mentioned the lymph glands of the mediastinum. I forgot to state that I think in both of our cases we had very good exposure of the mediastinum. It was very simple to remove the glands along the posterior surface of the bronchus and in the mediastinum by either the anterior or the posterior approach. I have not meant to depart too radically from surgical precedents, but I feel that if drainage can be avoided, certainly in the uninfected cases, it will be a help in restoring that side of the thoracic cavity to normal.

EXPERIMENTAL STUDIES IN VASCULAR REPAIR

O. JASON DIXON, M.D.
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As we arrive in this world an intricate physiologic interruption in the circulation takes place which separates us from the maternal blood stream and places us entirely on our own. The success of this remarkable and most interesting process in the beginning of a new life hinges on a normal physiologic reaction; namely, thrombosis and the rapid healing or closing of an injured blood channel. As we depart from this biologic battle the last physiologic change in our bodies after our heart has ceased to beat is the clotting of blood within our veins.

During the interval between these terminal events of life, most of the pathologic changes that take place in the body have either directly or indirectly some bearing on the problem of thrombosis and the subsequent repair of this vascular damage. The healing of all wounds, the constant battle with infections, as well as the development and growth of the body, and the actual maintenance of life is dependent on this normal physiologic reaction. Karsner [1] describes repair as a reaction of the fixed tissue to an injury and divides it into three more or less intermingled stages; i. e., granulation, organization and cicatrization. Throughout this process the vascular changes play an extremely important part in the reconstruction. Although thrombosis is an intimate part of this vascular repair, the healing process is completely independent for, as MacCallum [2] says, "even when a thrombus fills the vessel and becomes replaced by fibrous tissue, the endothelial cells take no part in the formation of that tissue but confine their growth to the production of a new lining membrane which will cover all the surface of the clot and extend into every crevice, so that the blood is kept from contact with the fibrin or the new fibrous tissue." Hertzler [3] has said that thrombosis is the most important problem in surgery and the least understood. As thrombosis is the first change that occurs in the process of vascular injury, it becomes a very important step in vascular repair.

When a needle is inserted into a vein for the withdrawal of blood, a certain amount of damage is done to this vein wall. A hole is torn in this tubular blood-filled channel and certain pathologic disturbances take place that might be the forerunner of immediate and

Read before the Section on Laryngology, Otology and Rhinology at the Eighty-Fifth Annual Session of the American Medical Association, Cleveland, June 15, 1934.

1. Karsner, H. T.: Human Pathology, Philadelphia, J. B. Lippincott Company, 1926.
2. MacCallum, W. G.: Textbook of Pathology, ed. 3, Philadelphia, W. B. Saunders Company, 1924.
3. Hertzler, A. E.: Surgery and Pathology of the Skin Fascia, Muscles, Blood Vessels and Tendons, Philadelphia, J. B. Lippincott Company, 1933, preface.

serious complications. The muscular coats and the elastic tissue in the vein wall immediately draw the wounded edges of the vessel firmly together. The injury to the vein permits a loss of tissue juices that are rich in fibrinogen, and when this substance comes in contact with the escaping blood under normal conditions a firm clot quickly forms and the opening is tightly sealed. This clot not only covers the outer surface of the wounded vessel but extends over the damaged inner coats, and its size and shape are in proportion to the amount of venous damage.

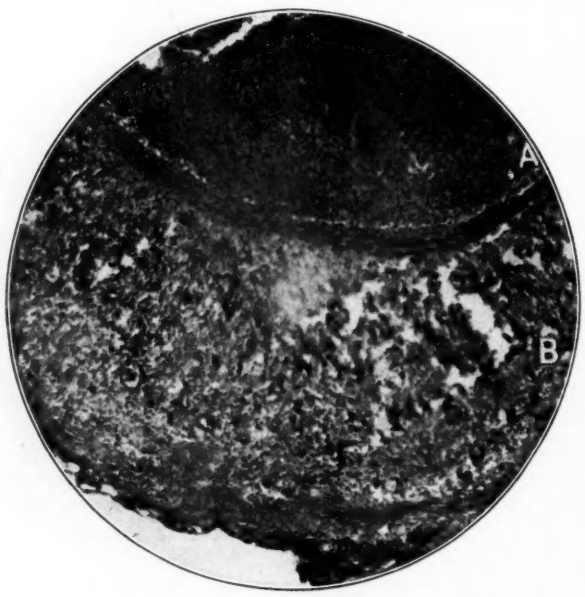

Fig. 1.—*A*, cross section of external jugular vein showing the firmly attached noninfected retrograde thrombus. *B*, the vein wall, the intima of which was curetted, showing the characteristic thickening resulting from this trauma.

What nature attempts to do, usually with success, is to maintain the venous channel as a blood carrier with as little interruption as possible, block the escape of blood through the wound promptly and repair the defect in the shortest space of time. Almost immediately after this intravenous or mural clot has formed, a lining similar to that of the normal blood vessel is laid down over the surface of the clot. I have been able to identify normal vascular endothelium on these clots within eighteen hours after the initial injury.

Immediate and fixed approximation of the wounded edges of the vessel is the best method for prompt repair. However, this may be highly unpractical in some instances because the location of the injured vessel may not lend itself to the favorable technic and, in addition, the suturing of the inflamed and diseased vessel may not always safely prevent the loss of blood.

Certain vessels such as the sigmoid sinus are not amenable to ligation and suture repair. In the field of otolaryngology, this vessel is frequently infected and presents many perplexing problems. It is to the sigmoid sinus that the major portion of these experiments have been directed, although it has been necessary to resort to other venous channels in animal experiments. The sigmoid sinus offers many advantages for the study of thrombosis and vascular repair. It is easily exposed and this exposure can be maintained for a considerable length of time because it is not disturbed by the inflammatory reactions of the surrounding soft tissues. As it passes through the firm layers of the dura, this helps to keep the vessel open. While thrombosis and the reparative processes of injured veins are similar throughout the body, yet there are certain mechanical, physiologic and anatomic differences in the sigmoid sinus that might produce different reactions to injury. On account of the structure of the sigmoid sinus, eddies are formed in the circulating stream and there is a regular interruption of blood flow by the changes in intrathoracic pressure. There is such a fine balance and rich anastomosis with the other intracranial venous sinuses that all these factors are conducive to the formation of a thrombus and a rerouting of this normal venous return by way of the other patent channels.

ETIOLOGIC FACTORS

Various factors enter into the repair and restoration of the normal function of the venous channel, such as the manner in which the vein is injured, the amount of destruction of the vein wall, whether it is infectious, traumatic or both, and the duration of the inflammation; the condition of the patient's blood also plays an important part in all tissue repair. These mechanically produced vascular changes are not identical with those caused by the bacterial destruction of tissues. They differ, as MacCallum has stated, because bacteria may persist after healing has begun, and this may continue to repeat the injury. Although endothelial cells may have extraordinary powers of assuming other forms and functions, it is in the repair of vascular injuries that they have such a high degree of specificity, and the chief function of these endothelial cells in later life is the formation of a new lining for blood vessels.

TYPES OF EXPERIMENTS

The first series of experiments were the ligation of veins in the dog, varying in size from the internal jugular to the inferior vena cava. When these vessels were tightly ligated an intravenous thrombus formed at the site of the ligation, which was eventually absorbed; and although there was a compensatory hypertrophy of the collateral circulation to carry on a sufficient venous return, in no instance did the vessel recanalize past the point of obstruction.

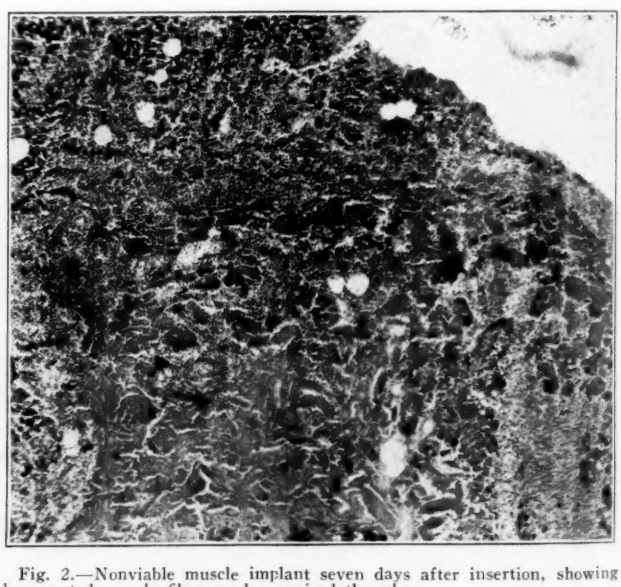

Fig. 2.—Nonviable muscle implant seven days after insertion, showing degenerated muscle fibers and organized thrombus.

In the next series of animals, nonviable muscle was used as a venous plug for the control of bleeding. This

nonviable tissue had many disadvantages. First, there was a tendency for it to slip out of the vein and permit a hemorrhage, either immediately after its insertion or from thirty-six to forty-eight hours later. Infection was more frequent and the reaction in the vein wall about the site of this nonviable tissue was always so great that the vein never recanalized (fig. 1). This reaction was apparently due to the necrosis of the nonviable tissue (fig. 2). Even when these plugs were not expelled spontaneously and when no infection occurred, recanalization or reconstruction of the vein past the point of obstruction never occurred.

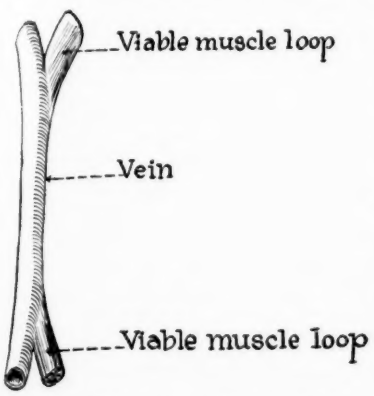

Fig. 3.—Vein with viable muscle loop placed intravenously sixty days before. The vein has completely recanalized along the opposite side of the viable muscle insertion.

Entirely different and very favorable reparative results took place in the damaged and obstructed vein when viable muscle was used intravenously or extravenously for the repair of various types of vein wounds. The amount of the completeness of this venous repair by the use of viable muscle is extensive, and the unexpected results were startling. Briefly, these experiments were as follows: First, a viable strip of clean muscle was pushed into the open external jugular vein toward the head for a distance of from 2.5 to 5 cm. The muscle was held in place three minutes by narrow pointed thumb forceps. The venous flow had previously been obstructed beyond the point of opening by placing a hemostat on each side of the exposed vein and elevating the bed so as not to injure the vessel in any way. Care was also taken not to damage the vein at any point except at the site of the muscle entrance, the attempt being made to determine just what part the viable muscle played in the formation of the thrombus unaided by tissue juices from the damaged vessel wall. This muscle filled the opening into the vein but did not distend the venous channel. The valves toward the cardiac end of the vein blocked the venous return from this direction. This procedure controlled the bleeding and promoted the quick formation of a firm and well organized thrombus, which usually extended from 4 to 6 cm. up to the point of the first bifurcation. The muscle remained viable within the vessel, and within fourteen to twenty-one days a new venous channel was formed opposite the point of the viable muscle insertion and the vein returned to its normal size and shape. The viable muscle then became an extravenous implant as it remained enclosed within the old venous bed, the new channel being a detour which had formed around the muscle, and the vascular endothelium formed the new wall of the vessel, using the viable muscle as a base. The same venous repair and recanalization took place when two separate viable muscle implants were led into the vein in a cephalad direction. Because a longer strip of vein was blocked (fig. 3) it took a longer time for the recanalization to form, but again the vein was restored to its normal size. When an incision was made in the external jugular vein of the dog, viable muscle placed on this opening, and the edges of the muscle sutured to the surrounding tissue, the escape of blood was completely blocked, and the venous channel was only partially occluded by the extravenous viable muscle. The opening into the vein healed so quickly that the injury could not be identified except at the site of attachment of the overlying muscle.

In another series the viable muscle was led into the vein and cut through an opening in the caudad end, and the raw ends of the extravenous muscle were sutured (fig. 4). In additional experiments, two strips of viable muscle were led into the vein from the caudad end and cephalad end and these raw ends were approximated intravenously (fig. 5), where they firmly united. In all these experiments, recanalization following the operative procedure always occurred.

When a segment of the vein wall was cut out over the intravenous strip of viable muscle (fig. 6), the defect was promptly repaired and the new channel formed in the usual manner. Finally, this vein overlying the intravenous loop of viable muscle was completely sectioned (fig. 7) and permitted to retract from 1 to 2 cm., leaving the bare muscle exposed, and again a new venous channel formed (fig. 8) over this muscular scaffold and both severed ends of the vein united so smoothly that it was impossible to determine the site of the previous injury (fig. 8). Aside from the fact that it took a longer period of time (from forty to ninety days) for this process to be completed, the reformation and reestablishment of this severed vein as a blood carrier was so complete that except for the remaining viable muscle loop it could not be differentiated on gross examination from the opposite vein, not

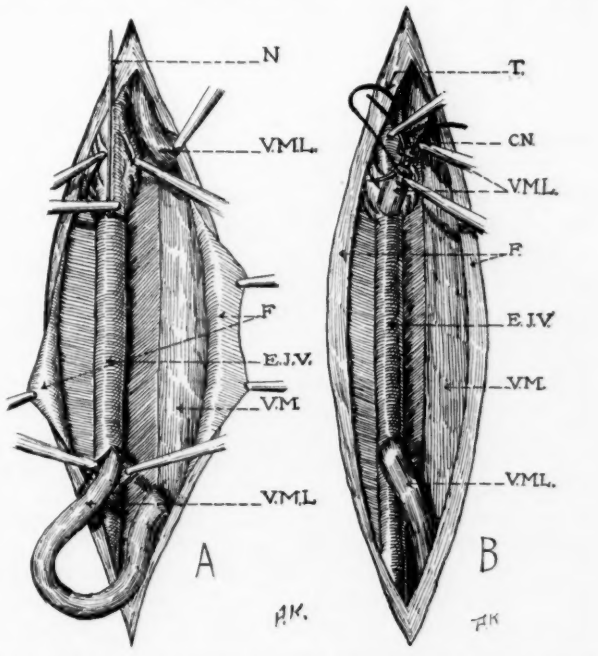

Fig. 4.—*A*, method of inserting a viable strip of muscle into the external jugular vein of the dog. The muscle is brought out of the vein at the point of exit of the needle. The exit and entrance are the only two places where the vein is traumatized, as it is not lifted from its bed. *B*, suturing of the raw muscle ends (*C N*) after the viable muscle strip has been led through the vein. The muscle quickly united at this point of suture and did not undergo atrophy, because there is no loss of function.

operated on, that was used for a control. The part that the viable muscle plays in the reformation of an entirely new venous channel and the joining of these severed and separated venous ends is, in my mind, the most positive conclusive evidence of the part that viable muscle plays in venous repair.

Although it is difficult to understand and determine just how this large vessel can be so completely repaired, the entire process, although on a much larger scale, is not unlike the regeneration of the smaller blood vessels, which is comparable to the following description by Marchand:[4]

> When such strands of endothelial cells, which at first may be no more than whiplash-like protoplasmic filaments, become united with others so as to form a bridge and become thickened into a double row of cells by mitotic division, there gradually appears a cleft in the middle through which blood corpuscles are forced. There has been much discussion as to the part played by connective tissue cells in this process, but the evidence seems to be overwhelming in favor of the idea that when connective tissue cells take any part they act merely as supporting cells, applying themselves to the outside of the new tube, of which the essential lining layer is composed of endothelial cells alone.

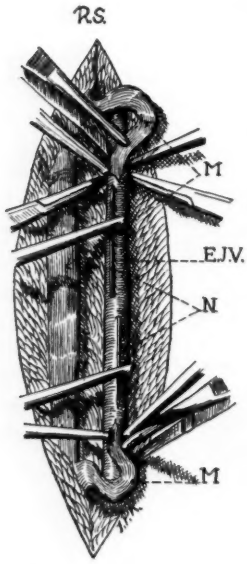

Fig. 5.—Intravenous approximation of viable muscle ends. The raw muscle ends reunited firmly and a new venous channel formed alongside the viable muscle insert in the usual manner.

Coffin[5] made the same observation in the repair of lymphatic vessels. Obviously viable muscle acts in the same way as the connective tissue cells in that it merely serves as a supportive framework on which these newly developed vascular endothelial cells may easily and quickly regenerate. As the success of a tissue transplant depends primarily on the degree of specialization and the continuance of a constant and abundant blood supply, there are obviously two types of tissues well adapted to this experiment when viable muscle is used for vascular repair. It is well known that the failures resulting in the transplantation of the more highly specialized tissues are because the cells do not survive long enough to permit the development of new capillary blood vessels. Carrel[6] emphasizes the importance of the maintenance of this vascular supply in his remarkable experiments such as the transplantation of the kidney.

Further proof that an injured vein may remain open during the process of repair is based on the experiment in the dog in which I made an incision into the inferior vena cava and closed the opening by the direct application of the raw surface of a strip of viable muscle taken from the anterior belly wall. No ligatures and no sutures were used as the blood stream was only temporarily occluded during the application by finger pressure, which was gradually released within five minutes after the muscle had been applied to the vein wound. The intestine was then allowed to fall back in place and the abdomen closed. In eleven of these operations there was no postoperative bleeding, including operations in two of the animals that developed a septic fatal peritonitis. Specimens of the vena cava taken at necropsy showed the mural thrombus covered with immature endothelial cells as early as eighteen hours after operation. In none of the animals was there any evidence of embolic disturbance, and never was a complete occluding thrombus formed. The viable muscle strip undergoes the normal atrophy of disuse but remains fixed to the vena cava and does not produce distortion of the venous channel. Fibrin is thrown out so quickly about this raw muscle that it is necessary to dissect the finger free to prevent the removal of the muscle when the pressure is released from the vena cava. This also suggests that finger pressure should be carefully and slowly removed when the viable muscle is used to close the defect in the sigmoid sinus. The patency of the vena cava was confirmed by roentgen studies made after the injection of opaque mediums in the saphenous vein (fig. 9).

If complete occlusion of the sigmoid channel is desired after the infected thrombus has been removed, the viable muscle should be large enough to fill the vein completely and should be led into the sinus with a needle and thread and fixed in position. This method will produce a more extensive retrograde thrombosis and by detouring the circulating blood away from the infected vein should help to prevent a widespread dissemination of the infection. Regardless of whether the muscle is extravenous or intravenous or how far it is inserted into the venous channel, the experiments on the dog lead me to believe that eventually the obstructed sigmoid will recanalize and carry on its function as a blood carrier, provided its temporary obstruction is caused by viable muscle.

In this particular problem of the sigmoid sinus thrombosis the immediate operative complication, namely, the control of hemorrhage, has demanded and received the major amount of attention. While the control of hemorrhage is extremely important and quite necessary in immediately saving the life of the patient, it is by no means the only part of the problem. It is the infection within this blood channel that creates the destructive and often fatal complications, and surgical attention, if the surgeon's obligations are to be fulfilled, cannot be directed exclusively to the removal of the infected thrombus and the immediate control of hemorrhage. After this is done he has only exchanged this known infected thrombus for a new occluding thrombus which he hopes and trusts will not become reinfected. He can do more than hope and trust for these favorable results if he applies the patient's own tissue, that is, viable muscle, for the repair of this infectious and traumatic damage. He has removed only a part of the infection when he takes away the infected thrombus as he cannot, because of obvious anatomic reasons, remove the infected vein. Not only does this viable muscle produce less trauma to this injured vessel but it brings in some additional blood and lymph supply, which may in some cases be enough to turn the tide for a favorable outcome. My experimental observations lead me to believe that the disadvantages in the use of this tissue are more theoretical than real, because in none of these animals have I encountered any embolic phenomena or any fatal postoperative hemorrhage when viable muscle is used. The application of viable muscle in the repair

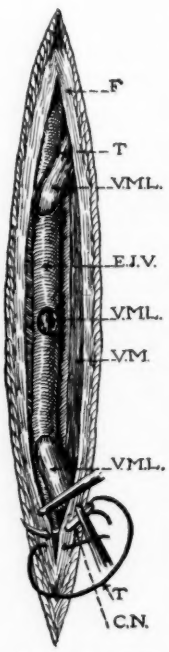

Fig. 6.—A segment (*V M L*) of vein wall removing the overlying intravenous viable muscle. This defect is repaired prior to the recanalization.

4. Marchand, quoted by MacCallum, "Textbook of Pathology," p. 203.
5. Coffin, quoted by MacCallum, "Textbook of Pathology," p. 203.
6. Carrel, quoted by Karsner, Textbook on "Human Pathology, p. 193.

of vascular injuries is by no means limited to the sigmoid sinus, but it is this particular phase of the problem that interests me in this specialized field of surgery, and I shall not report here the experiments that I have carried out successfully on the carotid arteries, liver, spleen, kidney and brain.

METHODS OF REPAIR

This viable muscle serves as a scaffold on which the new vascular endothelial tissue growth may take place, not only with more rapidity but in a definite fixed route, and as the scaffold is not removed the new vascular repair continues to rest on this supportive base. To a certain extent the direction of the formation of the new venous channel can be guided by this muscular scaffold. For instance, when a viable muscle loop is placed within a vein, the new channel always forms on the opposite side of the muscle implant. As the muscle remains viable in this transformed position it reinforces the damaged and weakened vascular wall even after the new venous channel has been completely reconstructed. It was this constant finding in the relation of venous repair to viable muscle implants that suggested the adaptability of viable muscle implants in the repair of certain types of aneurysms.

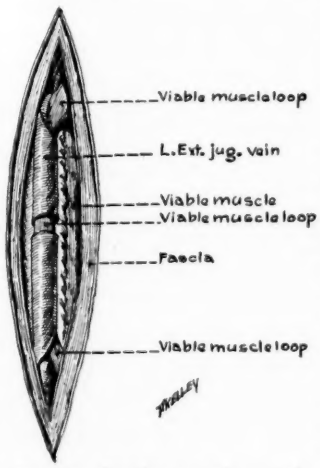

Fig. 7.—Complete section and separation of the vein wall overlying the viable muscle implant. The viable muscle acts as a base on which the new vascular endothelium is laid down, and the defect is completely repaired and the vein recanalizes (see figure 8).

Reparative processes are carried on without apparent functional demands, as can well be demonstrated by some of these experiments. For instance, when the two external jugular veins in the dog are simultaneously blocked with viable muscle, a prompt and sufficient collateral venous return is established. This takes place by the dilatation of the subcutaneous veins and the compensatory dilatation of the smaller internal jugular veins. The compensation is so prompt and efficient that there is no clinical evidence of any circulatory block. Roentgen studies as well as postoperative exposure of the vessels at various intervals confirm these observations. With the ease by which this compensation is so fully and quickly developed it would seem that nature would be content to accept this new detour for the venous return, but she shows her resentment to this circulatory disturbance by always returning as far as possible to the old established channels. Almost immediately the dilated superficial veins again return to their normal size and the dilated internal jugular veins that were apparently carrying their extra burden without inconvenience quickly diminish to one third their newly acquired size.

OTHER TYPES OF EXPERIMENTS

After it had been definitely established that a new channel of normal size always formed along the opposite side of the viable muscle insert, various attempts were made to reroute this newly formed channel. For instance, the vein was sectioned below the insertion of the viable muscle to see if a new venous channel would form out through the muscle. This never occurred. In order to determine what part the restoration of the venous channel plays in the recanalization of the vein beyond the viable muscle implant, I tied the vein with a silk ligature distal to the point of entrance of the viable muscle. As some authorities maintain that blood does not enter the newly formed capillary buds until these adjoining sprouts communicate and provide a circulation, it is quite interesting to note that in all the experiments a new channel was opened up past the muscle insert and to the point of the ligation exactly in the same manner as in those experiments in which the vein was not ligated. It was also proved that there was no venous return out through the viable muscle loop, as there was only normal bleeding when the muscle was cut, and microscopic sections showed only the normal vascular supply. It would appear from these experiments that nature repairs and restores the continuity of the venous channel up to the point of a permanent obstruction even without a functional demand.

CLINICAL APPLICATION

The clinical application of this problem to the human being consists of the following technic: After the sigmoid sinus has been exposed and the mastoidectomy completed, the mastoid incision is continued downward along the posterior border of the sternocleidomastoid muscle from 4 to 6 cm. (fig. 10*A*). A strip of muscle which is left attached at the mastoid tip is separated and cut transversely at the lower border of the wound (fig. 10*B*). This muscle should not be traumatized and should be left in the wound until ready for use. The sigmoid is then opened in the normal manner and the thrombus removed, preferably by suction. While the assistant occludes the upper and lower ends of the sigmoid to control bleeding, the viable muscle is either placed on the wound or led into the sinus with a needle and thread and fixed in position, as has been previously described; or the muscle may be held over the sigmoid wound by finger pressure for three or four minutes until enough fibrin firmly seals it and then petrolatum gauze packing is placed over this viable muscle explant to help hold it in position. Two different pathologic manifestations may indicate whether the muscle should be intravenous or extravenous. For instance, if the sigmoid sinus is accidentally opened or if it is opened and no thrombus is found, the extravenous muscle implant is preferable, because there is no advantage in completely occluding the venous stream and producing an extensive throm-

Fig. 8.—Specimen of external jugular vein with intravenous viable muscle implant that had had a complete section of the overlying vein wall one hundred days previously (see figure 7). The wounded vein borders are so smoothly united that evidence of previous injury could not be determined. The vein is restored to its normal size as a blood carrier.

bus. When a small opening is made in the sigmoid and viable muscle is laid on the wound to control the bleeding, I believe that only a mural thrombus forms at the site of the vein wound, which within a few hours is covered with vascular endothelium. Only while the muscle is being applied is the blood stream completely occluded. Further manipulations and disturbances to

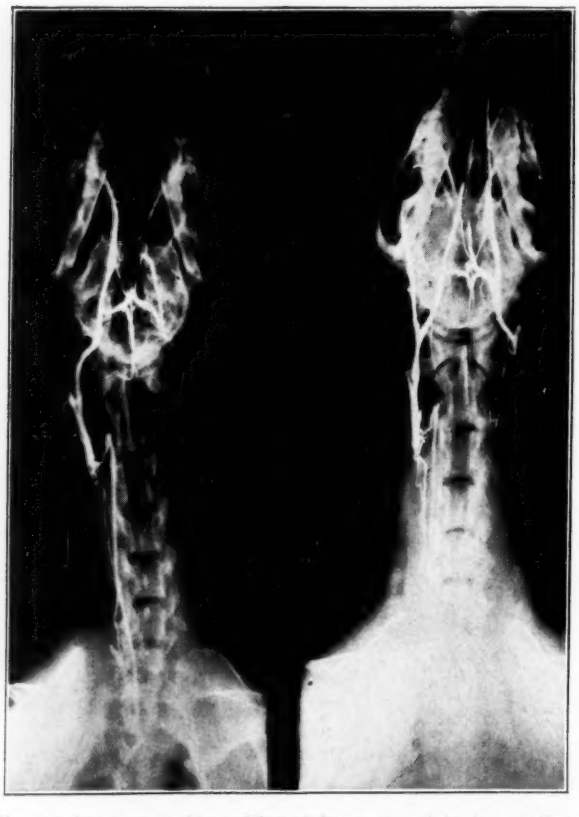

Fig. 9.—Appearance after sublingual intravenous injection of diotrast of the external jugular veins sixty days following the insertion of gauze plugs, showing the compensatory collateral hypertrophy and failure to recanalize beyond the point of obstruction.

the vein wound are unnecessary and healing is in no way retarded. This method, I believe, is much to be preferred to the complete blocking of this channel with a foreign body such as a gauze plug, which is inserted through an infected wound and necessitates the formation of a complete occluding thrombus, which, being a nonviable tissue in direct communication with the circulating blood stream, is very apt to become infected and liberate bacteria directly into the circulation.

The use of viable muscle in vascular repair is based on a sound embryologic basis, as muscle and blood vessels both arise from the mesoderm. Also blood vessels contain within their coats muscle tissue, which is filled with blood vessels. In addition, blood vessels and muscle tissue are almost equally rich in the tissue juices that promote thrombosis. Apparently this muscle, which is used either intravenously or extravenously in the repair of venous wounds, is the most satisfactory tissue that could possibly be used for their repair. Not only does this raw viable muscle promote rapid and firm clotting but it hastens healing, helps to retard infection, minimizes the amount of trauma and, what is more remarkable, permits the severed vessel to restore itself as a normal blood carrier.

Based on these experimental observations I think it is fair to conclude even without necropsy studies, which I have not yet done in the human being, that viable muscle, i. e., sternocleidomastiod muscle, when used in the repair for either intentional or accidental injuries to the sigmoid sinus, is not only the best means available for the control of hemorrhage and promotion of healing but, when it is used, one may expect a recanalization and complete repair, the sigmoid sinus being restored to its normal function as a blood carrier.

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ABSTRACT OF DISCUSSION

DR. MONT R. REID, Cincinnati: This paper illustrates the importance of a closer correlation and association between the various specialties of surgery. It too often happens that fundamental work remains cloistered for years in the field of the surgical specialty in which it originated. I am reminded of the life-saving procedure of ligating the jugular vein for septicemia resulting from a lateral sinus thrombosis. It is just beginning to find an application in the field of general surgery, where septicemias arising from infected foci in other parts of the body may be benefited by a similar procedure. I do hope that this excellent work of Dr. Dixon's will not suffer a similar fate but will reach the entire surgical profession quicker. He has drawn attention to the tremendous regenerative power possessed by the vascular endothelium provided it is given a chance to demonstrate this ability. Given a living vascularized tissue such as muscle, it will do it with amazing rapidity. In the absence of infection, it will do it quickly over free transplants of muscle which must secure their own blood supply

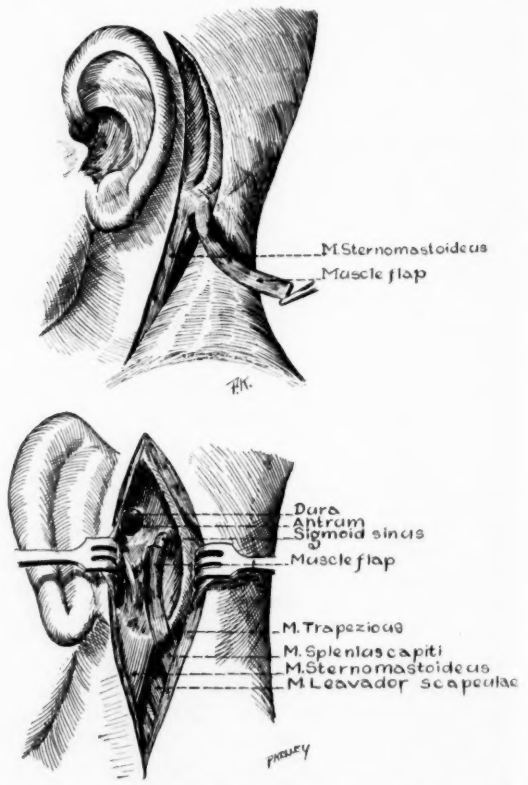

Fig. 10.—*A*, lengthening of the normal mastoid incision over the sternocleidomastoid muscle in preparation of the muscle flap for insertion into the opened sigmoid. *B*, viable muscle applied to the defect in the sigmoid sinus that has been opened.

to live, in addition to furnishing a base, circulation and medium for the growth of endothelium. I speak of this because it has long been a practice among general surgeons to use plugs of muscle to control bleeding from veins or arteries when it is not possible or desirable to ligate the bleeding points. It is preferable to use adjacent and attached living muscle, but frequently, especially in brain surgery, this is not possible, and free transplants of muscle must be used. I am grateful to

Dr. Dixon for his demonstration of the probable ultimate fate of a vessel so treated. It is distinctly encouraging. It is well known that infection alters the process. When, however, the exigencies of the situation, such as his problem of the sigmoid sinus, demands a plugging of the wounded vessel, I am sure that his method of using attached, living and vascularized muscle is certainly the best procedure and a real contribution. In the practice of general surgery, one finds certain analogies in the use of pedicled muscular flaps for the obliteration of chronically infected empyema and bone cavities. Not only are the cavities obliterated, but the infection clears up more rapidly. It very likely will be proved that this use of pedicled muscle will not only be most beneficial in dealing with the open sigmoid sinus but will be a distinct benefit to the healing of the mastoid cavity. I should like to ask Dr. Dixon whether he would rely solely on the complete plugging of the sigmoid sinus with muscle when there exists a septicemia.

Dr. Lyman G. Richards, Boston: This experimental work demonstrates conclusively that viable muscle tissue can be used effectively in the control of immediate venous bleeding. This is undoubtedly due, aside from the mechanical occlusion of the opening in the vein wall, to the thrombokinetic substances contained in the muscle tissue, a property that has long been made use of particularly by neurologic surgeons. Dr. Dixon's work brings out that the complete occlusion of the vein lumen by such viable muscle is followed by a complete recanalization of the vein, eliminating any objection to its use on this score. This is, therefore, a material of appropriate histologic and physiologic structure for use in the control of lateral sinus bleeding. Where such bleeding is the result of accidental trauma, the method of control here suggested would seem to be ideal. It avoids pressure packing and its consequent thrombosis and possible infection at the site of the compression. This method might well be reserved for those instances in which simpler measures fail. All are familiar with the ease with which a slight pressure with bone wax or gauze for a few minutes will at times seal over the tear with no further bleeding or compression packing. While the securing of the section of sternomastoid muscle is not complicated, it is one more additional procedure in the operative scheme. The greatest controversy will arise as to the use of the procedure in true septic phlebitis of thrombosis. Here the experimental work and the clinical situation diverge to a considerable extent, since in none of the experimental animals, as I understand this paper, was there any true septic venous thrombosis. Moreover, the external jugular vein of the dog has the advantage of easy mobilization and temporary occlusion from above, which does not exist in the case of the lateral sinus. Such ease of occlusion permits opening the vein and inserting a strip of muscle with much less interference from bleeding than has been my experience in mastoid surgery. It is true, of course, that the sinus can be compressed between the skull wall and the brain; but the resistance offered by the latter is not always such as to secure the complete obliteration that one would expect from certain pictures in the textbooks. Nevertheless, I have no doubt that muscle can be inserted into the sinus lumen after the removal, if present, of the septic clot.

Dr. O. Jason Dixon, Kansas City, Mo.: In regard to the muscle becoming infected, it has long been known that muscle reacts very favorably in the presence of infection, and while I didn't report it here, I have carried on experiments with infection in the dog. I have also used viable muscle in man. I had a motion picture film here to show it, and also to show the amount of scar left. The only way I have been able to infect the thrombus in the dog is by the use of nasal discharge from a dog suffering from distemper. The dog is not susceptible to our virulent types of bacteria. I have injected streptococci from the brain of patients dying with otitic meningitis without the slightest reaction and when I use the usual discharge the dog develops a chill and runs the septic course of the human being. It is interesting to see how quickly that can be controlled, in some instances, by the removal of the focus of infection. Of course, any thrombus completely occludes the vessel. It is a question how extensive that thrombus is, how firm it is and how well organized. With muscle I find that the thrombus which forms is from six to eight times as extensive as when gauze is used. Therefore there is a better and a more fixed plug and I also detour the circulating blood stream away from the point of infection farther back. Experimentally, in the human being one is dealing with an entirely different problem. Here there is a low pressure in the vein, bleeding is easily controlled, and, after all, one is dependent more or less on a pack and the overlying pack and the plug to control this bleeding. The particular advantage that I see is that it prevents the redisturbance of an infected wound. When the chills cease, and the patient is convalescing, I remove the gauze plug and start the process all over again. The muscle should be filled with petrolatum gauze, which acts as another safety pack. I am sure that if one ever tries it one will find it a very simple procedure to obtain the muscle. It shouldn't be traumatized, it shouldn't be handled with forceps, but aside from that one can do almost anything with it. One can get as much as one likes; there is always more than is needed, and I believe that it eventually will have some advantages. I believe that it is going to have certain advantages in other fields of surgery.

DISSECTING AORTIC ANEURYSM WRONGLY DIAGNOSED CORONARY THROMBOSIS

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The development of a dissecting aneurysm of the aorta may simulate closely acute coronary occlusion. We are presenting herewith an interesting and instructive case in which we ourselves were in error, with a discussion of the differential diagnosis.

Some ten years ago there spread through this country a sudden realization that coronary thrombosis with cardiac infarction was a common condition that could be diagnosed clinically. This was after more than a decade of surprising neglect of Herrick's[1] classic paper on the subject. Along with the dispersal of this knowledge there was then, as there has been since, much interest in the possibility of confusion of coronary thrombosis with some acute abdominal disease. Herrick himself and also quite early Levine and Tranter [2] called attention to this possible confusion. However, as a rule the distinction is an easy one to make if both conditions are borne in mind. The other common condition with which coronary thrombosis was in the past often confused is angina pectoris; the differentiation is, however, so clear that such a mistake is rarely made nowadays.

In recent years attention has been directed to two other conditions that can be much more difficult to distinguish clinically from coronary thrombosis than are acute abdominal disease and angina pectoris. These two conditions are extensive pulmonary embolism producing an acute cor pulmonale and dissecting aneurysm of the aorta. Both are serious. The former is the more common and hence the more important condition; it will form shortly the subject of a report by one of us (P. D. W.) with Dr. Sylvester McGinn. The latter is much rarer but also important because of its serious nature and of the likelihood of its being overlooked; it forms the subject of the present report. It is of

From the Massachusetts General Hospital.

1. Herrick, J. B.: Clinical Features of Sudden Obstruction of the Coronary Arteries, J. A. M. A. **59**: 2015 (Dec. 7) 1912.

2. Levine, S. A., and Tranter, C. L.: Infarction of the Heart Simulating Acute Surgical Abdominal Conditions, Am. J. M. Sc. **155**: 57 (Jan.) 1918.

interest that among 7,000 necropsies at the Massachusetts General Hospital a dissecting aortic aneurysm has been found in eighteen and never correctly diagnosed before death (although thought of in two). In 50 per cent of these cases, death was caused by rupture of the aneurysm; in the others the aneurysms were merely incidental changes and did not produce any symptoms.

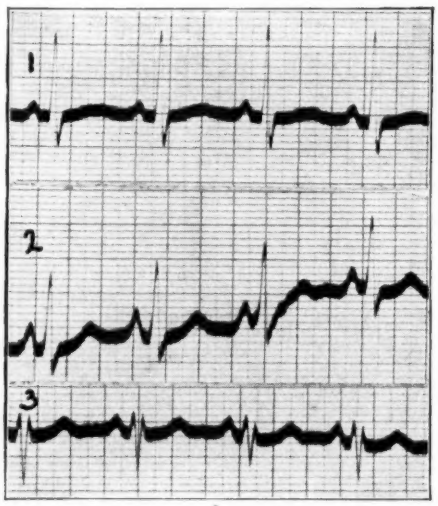

Fig. 1.—Electrocardiogram taken February 25, six hours after the onset of the severe pain. Leads 1, 2 and 3 are presented in sequence in this record and in the two to follow (figs. 2 and 3). The heavier time lines mark fifths of a second. Amplitude abscissas 10^{-4} volts.

REPORT OF CASE

History.—F. W. K., a man, aged 54, a lawyer, except for one attack of rheumatic fever in childhood had had no ill health until fifteen years before the present illness. At the age of 38, hypertension was discovered and slowly advanced to a recent level of 210 mm. of mercury systolic and 115 diastolic. The urine showed an increasing amount of albumin and of late a fixed low specific gravity of from 1.010 to 1.012

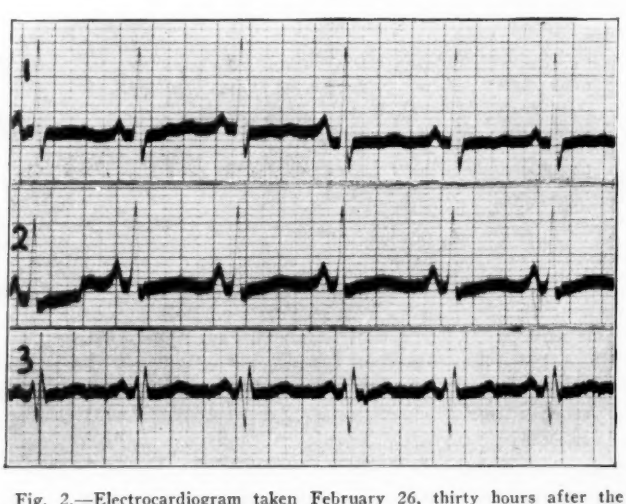

Fig. 2.—Electrocardiogram taken February 26, thirty hours after the onset of the pain.

with casts. Nocturia had developed, and some stiffness of the peripheral arteries was noted. During this period of medical observation covering fifteen years there were no cardiac symptoms or signs of failure except that three years before the present illness there was a mild attack of chest pain, thought by the attending physician to have been angina pectoris.

In 1920, twelve years before the present illness, carcinoma of the large bowel was discovered and resection was done, with the establishment of a permanent colostomy. In 1928 there were two important illnesses, pneumonia and appendicitis, for which appendectomy was done. The tonsils were removed in 1930.

During the three months just prior to the present illness the patient's vision had been failing and ophthalmoscopy showed retinal hemorrhages. Omitting tobacco helped his eyesight a good deal. Headaches during these months were relieved by acetylsalicylic acid. Routine examination early in January 1932, a few weeks before the present illness, revealed no serious abnormalities of the heart or lungs; the blood pressure at that time was 190 systolic and 100 diastolic. Soon after this the nonprotein nitrogen in the blood was found to be normal, 36 mg. per hundred cubic centimeters. The Wassermann reaction was negative.

The patient had worked hard for years with long hours and infrequent vacations. He smoked an average of twenty cigarets a day for years and used alcohol and tea and coffee moderately. He exercised little.

The family history was unimportant except that his father had died of heart disease. Four children were alive and well.

Present Illness.—Feb. 25, 1932, eight days before death, he awoke in the morning at his usual time with a consciousness of a slight dull pain over the precordium, with no sense of constriction and no radiation. He dressed, breakfasted, and went to work as usual with the pain still present, uninfluenced by exertion, and showing very little detectable change. At about 11 a. m., while trying a case in court, he was suddenly seized by a severe constricting and penetrating pain over the

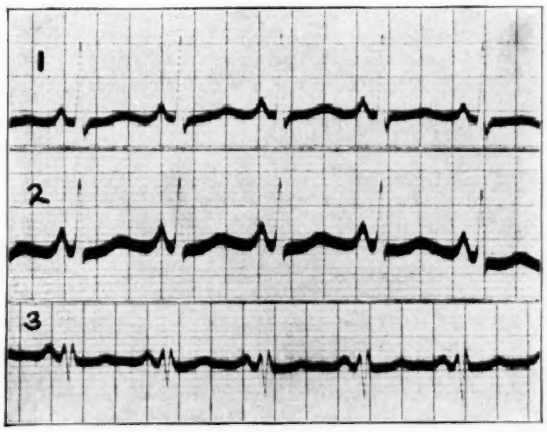

Fig. 3.—Electrocardiogram taken February 29, four days after the onset.

lower left side of the chest in front and extending somewhat into the right side of the chest. There was no radiation down either arm, but there was a sense of weakness and numbness in the left arm throughout. The pain extended laterally in the chest and grew steadily more severe and suffocating. He was forced to retire from the court room and to lie down for a few minutes. He then attempted to resume trial of his case but was unable to do so. It was at that time that a physician was called and found the patient complaining of excruciating pain in the left side of the chest. He was in profuse perspiration and collapse, lying on a couch. The color was pale and the eyes were apprehensive. The pupils were equal and regular and reacted to light and distance. The heart sounds were regular and of fair quality; no murmurs were heard. The pulse rate was 88 and the blood pressure 200 mm. of mercury systolic and 90 diastolic. The lungs were clear.

A tentative diagnosis of coronary thrombosis was made after inhalation of amyl nitrite had given no relief. Morphine sulphate was then injected subcutaneously in the dosage of one-fourth grain (0.016 Gm.) with very little relief. After fifteen minutes a second dose of one-fourth grain of morphine sulphate was injected. Gradually this afforded the patient definite relief but after another twenty minutes there was an accession of still more severe pain. A third dose of morphine sulphate (one-fourth grain) was then injected with very little relief. The patient was moved shortly after this by stretcher and ambulance to the hospital. The pain in the left side of the

chest subsided little by little but was not entirely gone for two days; it necessitated the administration of several more doses of morphine sulphate in the course of the forty-eight hours. Also, to combat restlessness and to afford a little sleep, twenty-five grains (1.6 Gm.) of triple bromides was given twice during the first night in the hospital. There was some nausea with slight vomiting that night.

An electrocardiogram taken in the afternoon of February 25, about six hours after the onset of the severe pain, showed a regular rhythm at a heart rate of 90 without any notable deviations from normal (fig. 1).

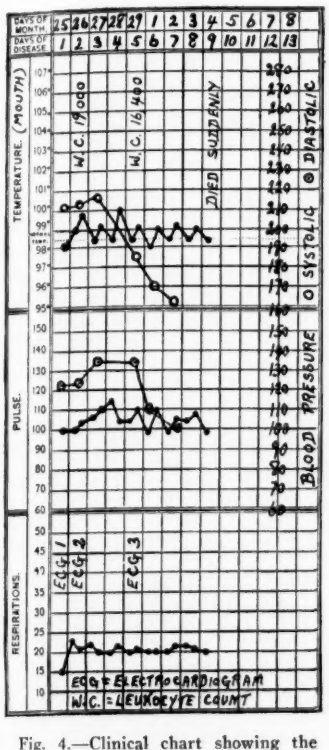

Fig. 4.—Clinical chart showing the slight fever, the variable heart rate, the normal respiratory rate, and the hypertension, which was maintained at a high level for the first three days.

The next morning, February 26, the patient felt much better but was not free from pain. The temperature rose to 100 F. and the leukocyte count to 19,000. The pulse rate was 90 and regular, and the blood pressure was 200 mm. of mercury systolic and 100 diastolic. Examination otherwise showed nervousness, with normal reflexes, and no arcus senilis, exophthalmos, or thyroid gland enlargement. The tongue was slightly coated. Both arterial and venous pulses in the neck were slightly increased. The heart was slightly enlarged; the maximal apex impulse and the left border of percussion dulness in the fifth space were 10 cm. to the left of the midsternum and 1.5 cm. beyond the midclavicular line. There was no abnormal dulness in the second or third left interspaces or to the right of the sternum. The heart sounds were good; the aortic second was somewhat accentuated. There was a slight aortic systolic murmur. No thrills were felt. There was no tenderness over the chest or abdomen. The lungs were clear. The abdomen was normal except for the colostomy opening. There was no edema over the back or legs, nor clubbing of the fingers.

An electrocardiogram taken on the afternoon of February 26, thirty hours after the onset of the severe pain, showed normal rhythm at a heart rate of 90; there was no change from the record of the day before except that the T waves in leads 1 and 2 were lower and the S waves in lead 2 smaller (fig. 2).

One more electrocardiogram was taken, February 29, three days later and about 100 hours (four plus days) after the onset of the severe pain. This record showed no important change from the second electrocardiogram; there was only a slight lowering of the onset of the T waves in lead 2 (fig. 3).

Course of the Illness.—After the chest pain had cleared up forty-eight hours following its onset the course of illness was relatively uneventful up to the time of death. He was treated for coronary thrombosis; in the absence of congestive failure he was given no digitalis. The fever lasted eight days (fig. 4). On the third day he complained of midabdominal and upper abdominal pain almost completely relieved by an enema; however, he never felt entirely well because of rather vague abdominal pains. The heart showed no changes. The lungs remained clear. The blood pressure remained elevated. He stayed quietly in bed.

The leukocyte count, February 26, was 19,000; February 29 it was 16,400.

The urine examination, February 26, showed a large trace of albumin, a specific gravity of 1.014, no sugar or bile, a neutral reaction, and occasional white and red cells and a moderate number of hyaline casts in the sediment. March 2 the urine showed a slight trace of albumin, a specific gravity of 1.020, no sugar, and occasional small round white cells and rare hyaline casts in the sediment.

Early on the morning of March 4, eight days following the onset of the severe pain, he sat up in bed, asked for a cigaret, smoked it, and then suddenly without a sound dropped back unconscious and died immediately.

The antemortem diagnosis was coronary thrombosis.

Necropsy.—Postmortem examination was performed, March 4, three and one-half hours after death. The pertinent observations were as follows:

When the chest plate was removed a thin bloody fluid exuded from the right pleural cavity. Further exploration of the right pleural cavity showed that the right lung rested on a huge postmortem blood clot weighing 1,600 Gm. and also on 1,500 cc. of unclotted blood. The left pleural cavity was normal.

The pericardium was normal.

The heart was enlarged and weighed 500 Gm. The myocardium was markedly contracted and very firm. There were marked hypertrophy of the left ventricle and some hypertrophy of the right. There was some dilatation of the right auricle. The right ventricular wall measured 6 mm. in thickness, the left 24 mm. The mitral valve measured 11.5 cm. in circumference. There were three or four small mucoid flattened vegetations about 2 mm. in diameter along the line of closure of the aortic leaflet. The aortic valve measured 7 cm. in circumference. There were several fine pinkish glistening vegetations about 0.5 mm. in diameter on the outer surface just above the line of closure of the anterior and right posterior cusps. There was slight interadherence between the right and

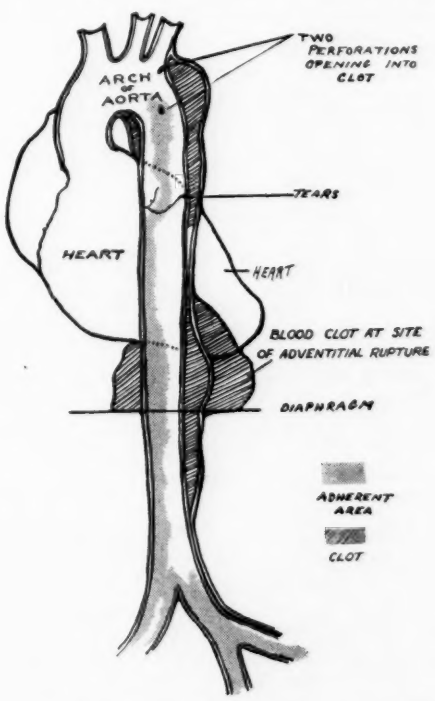

Fig. 5.—Diagram showing perforations and tears in descending thoracic aorta with blood clot in the aortic wall and also some blood clot adherent to the adventitia externally just above the diaphragm.

left posterior cusps, with a small vegetation about 2 mm. in diameter on the right border of the commissure. There were several arteriosclerotic plaques on the inner surface of the right and left posterior cusps. The tricuspid valve measured 11 cm. in circumference and the pulmonary 8 cm.; both were normal.

The coronary arteries showed some arteriosclerosis but little narrowing and no occlusion.

The ascending aorta measured 7 cm. in circumference. It showed a moderate amount of arteriosclerosis. The arch

measured 6 cm. in circumference. It also showed a moderate amount of arteriosclerosis. In the outer portion of the media of the arch there was an organizing blood clot measuring 5.5 by 2.5 by 2.5 cm. This clot was moderately firm, slightly friable and grayish pink. It was adherent to both external and internal surfaces. There was a triangular ulceration with perforation of the intimal and medial coats of the arch, measuring approximately 8 by 5 mm. in extent, located at the junction of the arch with the left subclavian artery (figs. 5 and 6). There was a second triangular ulceration with perforation measuring 3 by 4 mm. in extent located in the central portion of the arch 2.5 cm. from the higher perforation. Both these perforations communicated with the blood clot in the dissecting aneurysm already described. The media was split almost completely in the thoracic portion of the descending aorta. There was an almost complete horizontal tear of the intima and media approximately 7 cm. below the arch. There was another but only partial horizontal tear 3.5 cm. below the arch. A portion of the blood clot dissected down the descending aorta as a narrow strip measuring 6 by 1 by 0.2 cm. At

Fig. 6.—Detailed drawing showing the dissecting aneurysm of the descending thoracic aorta with the separation of its coats by the blood clot.

the terminal portion of the descending thoracic aorta just above the diaphragm there was a blood clot measuring approximately 7 by 3 by 1.5 cm. adherent to the external surface of the adventitia, the result of a perforation of the adventitial coat. This was the site of the origin of the blood found in the right pleural cavity. The aorta at the level of the sixth intercostal artery measured 5.6 cm. in circumference.

The abdominal aorta was moderately arteriosclerotic. There was partial splitting of the media, but no definite blood clot could be seen in the wall of the distal part of the abdominal aorta. In the portions that were not definitely separated, a thin purplish red line of apparent blood clot could be seen extending within the media down the descending aorta and also into the iliac arteries. The whole aortic wall was very friable and could easily be torn. This was more marked in the thoracic portion.

The pulmonary artery and venae cavae were normal.

The suprarenals were normal.

The kidneys weighed 325 Gm. The capsules stripped with moderate ease, leaving a grayish surface that was studded with small petechial reddish spots. The cortex measured 7 mm. in thickness. It was very pale and contained a few linear reddish areas and scattered yellowish glistening specks. There was a moderate amount of pelvic fat.

The heart's blood showed no growth on culture.

Microscopic Examination of the Aorta.—All sections showed a marked thickening of the wall. This was due in part to a marked fibrous and atheromatous thickening of the intima, but to a much larger extent to a dissecting clot of fibrin and red cells lying apparently in the outer third to quarter of the media and to marked proliferative and exudative changes in the adventitia. The inner layers of the media appeared essentially normal except in one or two areas where focal areas of scarring with loss of elastic tissue were noted. In the outer layer of the media, masses of red cells were noted dissecting their way between persistent elastic fibrils with an apparent destruction of the muscle cells. Several portions of the clot showed well marked early organization. The adventitia showed a very marked increase in the number of capillary vessels, which were often arranged in parallel rows at right angles to the lumen of the aorta. There was also a marked diffuse and focal polymorphonuclear and mononuclear infiltration in the immediate neighborhood of these proliferating capillaries.

FINAL ANATOMIC DIAGNOSES

The final anatomic diagnoses were as follows:

Dissecting aneurysm of the aorta (arch, descending thoracic, and abdominal) and of the iliac arteries.

Rupture of dissecting aneurysm of the aorta, descending thoracic.

Massive hemothorax, right.

Cardiac hypertrophy and dilatation, hypertensive type.

Acute endocarditis, mitral and aortic valves.

Arteriosclerosis; arteriolar sclerosis.

Chronic vascular nephritis, marked.

Pulmonary emphysema, slight.

Absence of rectum and sigmoid, old resection for carcinoma; colostomy.

Adenomatous polyps of colon and of cecum.

Papillary adenomas of the kidney.

Hyperplasia of prostate, slight.

Cysts of spleen, small, unclassified.

COMMENT

In this case the prolonged severe chest pain that we attributed to thrombosis of a good sized coronary artery resulting in a large myocardial infarct was without doubt due to the splitting of the coats of the aortic wall in the formation of the dissecting aneurysm. The beginning of the resolution of the blood clot in the aortic wall undoubtedly caused the fever and leukocytosis, which again we wrongly attributed to the resolution of a myocardial infarct. Finally, the sudden death due to the rupture of the aortic wall into the right pleural cavity after eight days of illness we considered at the time to be due to rupture of the heart wall itself, to the overwhelming effect of an attack of angina pectoris or to ventricular fibrillation.

An important symptom that may aid very much in at least suggesting dissecting aortic aneurysm, namely, pain in the back or referred to the back, was absent in our case. To be sure, the anterior chest pain did radiate laterally, but that happens with coronary thrombosis. Also the pain had a tearing character, but its suffocating quality was in keeping with coronary pain.

There were three clues of varying importance in our case that should have helped us more than they did. At the time we remarked about them and expressed surprise at their presence with such severe "coronary thrombosis." The first was the maintenance of hyper-

tension throughout, at first marked, later less. This we do not now recall to have encountered in any fatal case of coronary thrombosis. Of course any very severe pain may be attended by a state of "shock" with a sharp fall in blood pressure, but that was not the case in our patient unless it was very transient at the onset before the pressure could be obtained. This maintenance of high blood pressure was mentioned by Gager [3] in a discussion of a case of dissecting aortic aneurysm in 1928.

The second clue in our case was the persistence of excellent heart action throughout. The heart sounds remained forceful with the aortic second much accentuated. No murmur or gallop rhythm developed at the apex, and there were no other signs of dilatation of the heart. Nor was there ever any suggestion of pericardial friction. The severity of the acute illness in our patient should have been attended or followed by some evidence of disturbed heart action had coronary thrombosis been to blame.

Finally, and most important of all, the electrocardiogram failed to show during the first five days after the onset of the very severe chest pain any indication of the important myocardial involvement that would necessarily have followed acute occlusion of a large coronary artery. We were much concerned at the time by this evidence, but we discounted it with the observation that here was a rare case of coronary thrombosis without "coronary T waves." We had never before encountered a case of proved severe myocardial infarction with practically normal electrocardiograms through the first week of the acute illness, nor have we in the two years that have elapsed since, but at the time we decided that this was an exception to the rule; we were wrong in that decision. Although coronary thrombosis chest leads have infrequently shown abnormalities in the electrocardiogram when the standard leads have not, we have ourselves as yet failed to find rapidly fatal myocardial infarction that did not give evidence of the condition in the standard leads at some time during the first week after the onset of the lesion. Undoubtedly chest leads (including the so-called lead 4) in this case would have been essentially normal; the patient came under our observation before we began to use routine chest leads in cases of suspected coronary thrombosis.

In 1921 Crowell [4] summarized the literature on dissecting aortic aneurysms and reported four new cases. There were then on record about 275 cases. Death had occurred from rupture into the pericardial sac in 47 per cent of the cases. Kellogg and Heald [5] in 1933 reported one of the last cases, and in their case the diagnosis was correctly made during life, on the basis of (*a*) sudden onset of pain which progressively spread, (*b*) evidence of interference of the arterial circulation to the lower part of the body [6] and (*c*) the supportive family history of vascular disease and the past history of hypertension. Kellogg and Heald state that thirteen cases of dissecting aortic aneurysm are recorded in the literature correctly diagnosed ante mortem.[6a] Davy and Gates [7] in 1922 reported an instance of dissecting aortic aneurysm in which sharp intense pain radiated straight back to the spine from the front of the chest, which one would expect to occur in more cases than actually happens. In their case sudden death on the nineteenth day was the result of rupture of the aneurysm into the left pleural cavity. In contrast to their case was one reported by Wedd and Thomas [8] in 1931: A woman, aged 36, with marked essential hypertension (280 mm. of mercury systolic and 180 diastolic) for several months before death had no pain at all. In this case the lesion was unsuspected before autopsy; the final rupture into the pericardium was attended by blurring of vision, dizziness and syncope. Gager [3] in 1928 in his case already referred to commented on the absence of coronary T waves in the electrocardiogram as well as on the maintenance of the hypertension during the acute illness.

Finally, a word is to be said about roentgen evidence. One may expect this to be generally disappointing, despite occasional clues. There are two chief reasons for failure of the x-rays to be of help in the majority of such cases. One of these is that the aorta is actually only slightly increased in size (circumference) in most cases by the hemorrhagic infiltration of its walls—this increase in caliber not being sufficient to make a notable prominence of the aorta, which tends to be somewhat enlarged anyway as a result of hypertension. The other reason is that only infrequently does one possess a control roentgenogram of the heart and aorta of the patient prior to the occurrence of the dissecting aneurysm.

SUMMARY

In a case of dissecting aneurysm of the aorta in a man, aged 54, we made a wrong diagnosis of coronary thrombosis because of the prolonged severe anterior chest pain at the onset, the fever and leukocytosis that followed, and the sudden death (from rupture of the aneurysm into the right pleural cavity), which occurred on the eighth day. Clues that should have helped us at least to question our diagnosis and to consider dissecting aortic aneurysm were (1) the maintenance of hypertension through the course of the acute illness, (2) the excellent heart action throughout, and, (3) most important of all, the absence of coronary T waves from the electrocardiograms of a severely ill patient during the first five days after the onset of the chest pain.[9]

3. Gager, L. T.: Dissecting Aneurysm of the Aorta Complicating Hypertension, Am. Heart J. **3**: 489 (April) 1928.

4. Crowell, P. D.: Dissecting Aneurysms of the Aorta: Report of Cases and Review of the Literature, J. A. M. A. **77**: 2114 (Dec. 31) 1921.

5. Kellogg, Frederick, and Heald, A. H.: Dissecting Aneurysm of the Aorta: Report of Case Diagnosed During Life, J. A. M. A. **100**: 1157 (April 15) 1933.

6. This is important evidence if present, but it is usually absent. It is due to the compression of the arterial branches, like the iliac, by the blood clot in the dissecting aortic wall. Even the coronary arteries may be so compressed, thus confusing still more the clinical picture.

6a. Since this paper was written there has appeared an important publication on dissecting aneurysms by T. Shennaw (Dissecting Aneurysms, Medical Research Council, Special Report Series, No. 193, London: His Majesty's Stationery Office, 1934). In this work the author has analyzed 300 cases with the involvement of the aorta in the great majority. Seventeen of the cases are from his own experience. Rare cases were diagnosed ante mortem.

7. Davy, H., and Gates, M.: Dissecting Aneurysm of Aorta, Brit. M. J. **1**: 471 (March 25) 1922.

8. Wedd, A. M., and Thomas W. S.: Dissecting Aneurysm of the Aorta, Clifton M. Bull. **17**: 154, 1931.

9. Within the past few weeks we have encountered a new case of dissecting aneurysm of the aorta which we diagnosed correctly during life, partly because of our experience with the case reported above but mainly because of two important points in the history, the first of which has not in some cases, we believe, been sufficiently recognized: (1) sudden overwhelming chest pain as if from the blow of a sledge hammer (in contrast to the more gradual development of the severe pain of coronary thrombosis) and (2) radiation of the pain, temporarily, toward the back and legs (not to the arms). This patient, a man of 57, developed slight fever (100 F. by mouth) and considerable leukocytosis (18,000) and died suddenly forty-eight hours after the onset of the pain. Postmortem examination showed a very extensive dissecting aneurysm involving the entire length of the aorta, penetrating even into the walls of both common iliac arteries and about the mouth of the right coronary artery (compression of which may have caused the slight abnormality that we found in the electrocardiogram—late inversion of T_3 after a high origin, and flat T_2). In spite of the involvement of the common iliac arteries, there was not enough compression of them to prevent full pulsation in both dorsalis pedis arteries. Death resulted in this case from rupture of the dissecting aneurysm into the pericardium.

THE EFFECTS OF CASTRATION IN THE ADULT MALE

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In order to increase familiarity with the diagnostic evidence of hypogonadism in men, twelve postpubertal castrates were subjected to careful clinical and laboratory studies, including bio-assays for the gonad-stimulating principles of the urine, and another substance from urine, presumably a testicular hormone which promotes comb growth in capons.

SYMPTOMS

Nervous and Vasomotor Symptoms.—The nervous and vasomotor symptoms of these castrated men constituted their most outstanding complaints. Unilateral castration did not give rise to any symptoms except a temporary diminution of libido in two cases. Complete castration, either by the simultaneous removal of both testes or by the removal of a single remaining gland, produced nervous and vasomotor disorders as early as the third day after operation. Nervousness was a major complaint of four patients at the time they were studied, although nine had experienced it at some time for varying periods after castration. The usual history was that the nervousness was first noted from three to eight weeks after operation. The patients' descriptions of this symptom were, for the most part, vague and poorly defined, but apparently there was a sensation of uncomfortable stimulation not unlike that resulting from a mild overdosage of thyroid. Such nervous excitability may be associated with a tendency to psychoneurosis, emotional instability and restlessness.

The vasomotor phenomena are closely allied with the nervousness and are usually the earliest symptoms of hypogonadism. Seven of these patients at the time they were examined complained of sudden flushing and sensations of heat or of chilling. Two of them had had such symptoms previously but had not noticed them for several years. The hot flashes occurred as many as four or five times daily for a period of several years and tended gradually to decrease in number and severity.

Potency.—Sexual potency (power of erection) and libido (sexual desire) were diminished in all twelve cases. Sexual impotence is not a distressing symptom in the absence of sexual desire. Hence, in the nine cases in which there was a complete loss of libido, neither partial nor complete impotence was a troublesome feature, but in the three cases in which there was a partial retention of libido, even partial impotence became a distressing symptom. Orgasms occurred in the cases in which potency was retained, but it is uncertain whether fluid was ejaculated. The knowledge that impotence exists and that it is disturbing normal domestic life has a tendency to be distressing, but psychoneurotic symptoms of any importance were present because of this in only one of these cases.

Psychic Symptoms.—Rowe[1] has stated that the "male castrate is subject to profound mental changes." This statement is not consistent with our observations. After the acute nervousness had subsided, our patients tended to display the quiet phlegmatic temperament referred to by Barker.[2] In one there were obvious psychic abnormalities; but evidently these were associated with and caused by advanced generalized arteriosclerosis, for the abnormal psychic state preceded castration and was probably a factor in producing the patient's insistence that the operation be performed.

Muscular Symptoms.—It is an extremely difficult matter to evaluate the reduction of muscular strength in the human being. Judging from the statements of the patients, it appears that the sense of energy and endurance were decreased in ten cases, but whether or not there was a change in muscular strength as related to a single effort could not be determined accurately. In this connection, a study of two cases of eunuchism in which there were definite evidences of prepubertal hypogonadism is interesting. Both of the men were very intelligent. Long periods of systematic physical training failed to cause an important increase in the muscular strength or endurance of one man. A relatively long period of military training failed to increase the physical endurance of the second man to a degree comparable to that of the other men undergoing the same training. Neither of these patients had physical abnormalities except those associated with hypogonadism.

PHYSICAL SIGNS

Genitalia.—Of the physical features resulting from castration, those having to do with the genitalia, prostate and prostatic secretion deserve first consideration. Atrophy of the prostate was a constant and striking feature in all these cases except one in which prostatectomy had been performed prior to castration. The size of the prostate glands varied from one-half to one-fifth normal. In one case, Dr. W. E. Lower made the note that "this is the most complete prostatic atrophy I have ever seen." As further evidence of the atrophy, vigorous and repeated massage failed to produce any prostatic secretion in eight of the cases. In two instances, when secretion was obtained from the urethra it amounted to one or two drops and proved to be a thin, clear, milky-white fluid containing some lecithin bodies and an occasional leukocyte. No spermatozoa, granular prostatic cells or corpora amylacia were found.

Atrophy of the penis was less constant and less marked, and was recorded in only five cases. Even in these, the statement of the patient had to be accepted, since the organs could be considered to be within the limits of normal size. The seminal vesicles were not palpable in any of our cases.

Secondary Characteristics.—The pubic hair in all cases was scant and of the female type of distribution. The axillary, perineal and anal hair was very scant. The amount of body hair was definitely reduced in all but one case. The beard was less often affected. Five cases presented a slight hypotrichosis of the face. In one, the changes in the hair were questionable and six were not changed by castration. The scalp hair showed no consistent deviation from the normal.

Body Weight.—The weight of eight of the patients was increased within the first year after castration. Seven men showed abnormal accumulations of fat, chiefly about the abdomen and breasts. One man who had gained weight failed to show these features at the time of examination because of a subsequent progressive loss of weight caused by tuberculosis and syphilis.

From the Cleveland Clinic.

1. Rowe, A. W.: Studies of the Endocrine Glands; Differential Diagnosis of Endocrine Disorders, Endocrinology **13**: 327 (July-Aug.) 1929.

2. Barker, L. F.: Endocrinology and Metabolism, New York, D. Appleton & Co. **1**: 177, 1922.

One of the eight patients gained 20 pounds (9 Kg.); but, since he had lost 15 pounds (6.8 Kg.) before castration, the actual gain was only 5 pounds (2.3 Kg.). All the others gained 20 pounds or more, the maximum increase being 30 pounds (13.6 Kg.). One patient was 10 pounds (4.5 Kg.) under his average weight, which may have been due to the castration, although his habitus could still be classified as pyknic. The second of the two who lost weight had been losing for at least a year prior to orchidectomy. The weight loss was apparently not accentuated by the operation and was due, at least in large part, to dietary deficiency.

Skeletal Changes.—There were no gross skeletal changes in this series comparable to the changes seen in prepubertal castrates.

Skin.—The skin appeared somewhat atrophic and was thin, slightly dry and very finely wrinkled in eleven cases. It had usually a pale or pasty sallow appearance. In one case the skin was more coarsely wrinkled and of the senile type. There was no dystrophy of the finger nails. The teeth did not reveal any trophic changes and were not loose.

Thyroid.—The thyroid gland was considered to be of normal size or smaller than normal in all but one case, in which there was diffuse smooth enlargement to two or three times the size of the normal gland.

Pituitary.—One of the effects of castration in animals is enlargement of the pituitary gland, but the studies of the eyegrounds and visual fields of this group of castrates failed to reveal any significant changes clinically. Roentgenographic studies of the sella turcica were made in ten cases. Nine yielded normal pictures. In one patient, roentgenograms of the sella turcica on two occasions, five and six years after castration, showed some erosion of the clinoid processes. In this instance it is a matter of conjecture as to whether the pituitary enlargement was influenced by the castration or not, because it had been noted during physical examination that the patient had features suggestive of early acromegaly. Acromegaly has not been reported as a consistent sequel of castration, and it appears likely that other factors were prominent in the production of the pituitary enlargement observed in this case.

Other Organs.—Except for the fat deposits in the breasts and around the abdomen there were no physical abnormalities of the chest, lungs, heart or abdomen referable to the hypogonadism. Neurologic examination showed normal results.

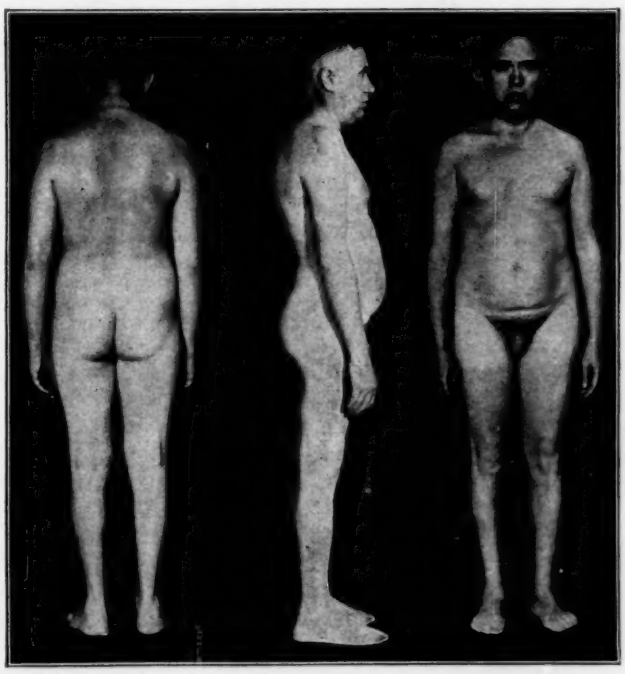
BIO-ASSAYS

Comb-Growth Promoting Substance.[3]— Bio-assays for the comb-growth promoting substance in the urine were done in eleven patients and the amount of the substance in the blood was determined in eight cases. Androtin was constantly absent. The method of extraction and assay have been described previously.[4]

Gonad-Stimulating Principle of the Urine.—Engelbach [5] stated that an "excess amount of pituitary sex hormone has not been demonstrated in the male castrate," but in our series of twelve cases a tendency to an increase in gonad-stimulating principle of the urine following castration in the male is evident. In eight of the nine patients who were subjected to the Friedman test there was definite evidence of increased gonad-stimulating principle in the urine, as compared to similar tests on normal men.

OTHER LABORATORY DATA

Dextrose Tolerance Tests.—The dextrose tolerance was considered normal in six cases. One patient was known to have diabetes, while two others showed an increased dextrose tolerance. Another patient showed a tendency toward relatively high blood sugar. At one estimation after operation the blood sugar was 179 mg. per hundred cubic centimeters three hours after eating, whereas the average estimation before castration was 108 mg. per hundred cubic centimeters.



Body conformation and distribution of hair in a typical case of adult hypogonadism resulting from castration.

Rowe [1] observed that castration does not change the galactose tolerance in males. The galactose tolerance has not been determined in our cases.

Basal Metabolism.—The basal metabolic rate tended to be low in this series of cases. In seven the rates were decreased to —14 or less, the lowest being —21. One patient's rate was + 5 per cent and another's was 0 per cent. It is interesting in this connection to note that the basal metabolic rate of one patient was —7 until six months after castration, whereas a year later it had fallen to — 21.

Blood Chemistry.—Serum calcium estimations [6] in eleven cases were all within the normal limits. It is obvious that the amount of testicular hormone in the body influences bone growth as judged by the skeletal changes following castration early in life. If such changes are due to the alteration in the calcium metabolism and if similar metabolic changes take place in late castrates, they are not reflected in the total serum

3. We believe that the comb-growth promoting substance in extracts of male urine is a testicular hormone, because it has been demonstrated to be present in the blood, urine and spinal fluid of normal men but has been shown to be markedly diminished or absent in these body fluids of castrates. Measurable quantities of comb-growth producing substance have been demonstrated in some cases of castration in both sexes. It has been shown to be identical with similar extracts prepared from testes as judged by all known physical, chemical and physiologic properties.

4. McCullagh, D. R.; Hicken, N. F., and McCullagh, E. P.: Diagnosis and Treatment of Hypogonadism, Endocrinology **17**: 49-63 (Jan.-Feb.) 1933.

5. Engelbach, William: Endocrine Medicine, Springfield, Ill., Charles C. Thomas, 1932, vol. 3, p. 736.

6. Clark's modification of the Kramer Tisdall method for estimation of the serum calcium was used.

calcium or total inorganic phosphate levels. The blood phosphate levels are 4.0 to 4.3 per cent in four cases. These are considered to be about the upper level of normal.

The cholesterol showed a tendency to be increased in the circulating blood and, with replacement therapy, to approach the normal level. It was above 200 mg. per hundred cubic centimeters in eight of the twelve cases, and rose to 400 mg. in one case.

We cannot draw any conclusions about the nitrogen metabolism, because in our series the nitrogen intake was not controlled. However, this feature has been studied by others. Korenchevsky [7] observed a fall of nitrogen metabolism in the "fat" castrated dog and little or no fall in the "thin" type.

The blood counts showed no significant deviation from the normal.

TREATMENT

In a few of these cases an attempt has been made at substitution therapy, with androtin, the male sex hormone prepared from urine.[4] When sufficient material was available for adequate dosage, there was considerable improvement in the subjective symptoms of the hypogonadism. These results have been most encouraging, but it is too early to evaluate accurately the benefits that may be anticipated from this type of treatment.

The pertinent data in this group of cases are shown in the accompanying table. The following case history is typical for the group:

Observation in Twelve Adult Male Castrates

	A. K.	C. M.	N. T.	D. C.	A. N.	A. R.	H. M.	A. O.	J. K.	J. P.	P. C.	F. H.
Age	36	33	61	50	54	51	65	47	58	40	63	50
Duration (years)	2½	7+	5	27	14	1	½	1	1	13	2	4
Nervousness	+	+	+	+	+	+	0	0	0	+	+	+
Hot flashes	+	+	+	0*	+	?	+	0	0	0*	+	+
Impotence	+	P	P	+	P	+	+	+	P	P	+	P
Diminished libido	+	P	+	+	P	+	+	+	+	+	+	P
Diminished energy	+	+	+	0	0	+	+	0	+	+	+	+
Vertigo	+	0	0	0	0	0	0	0	0	0	0	0
Atrophy of prostate	+	0	+	+	+	+	op.	+	+	+	+	+
Prostatic secretion present	0	0	0	0	0	..	..	0	+	0	+	0
Atrophy of penis	+	+	op.	0	0	0	?	0	0	+	+	+
Hypotrichosis of body	+	+	+	+	+	+	0	+	+	+	+	+
Hypotrichosis of face	0	?	+	+	+	+	0	+	0	0	0	+
Skin change	+	+	+	+	+	+	+	+	+	+	0	+
Weight gain (pounds)	25	24	27	0	5†	+	25	20	−10	30	−18	22
Abnormal accumulation of fat	+	+	+	0	+	0	+	+	0	0	0	+
Testicular hormone in urine	0	0	..	0	0	0	0	0	0	0	0	0
Testicular hormone in blood	0	0	0	0	0	0	0	0	..	..	..	..
Gonad-stimulating principle in the urine	I‡	I	I	I	I	..	..	I	0	..	I	I
Abnormal sella turcica	0	0	..	0	0	..	0	0	0	0	..	0
Dextrose tolerance	N‡	I	N	N	N	..	D‡	N	N	..	..	I
Basal metabolic rate	−19	−16	..	−15	−18	..	+5	−21	−14	..	−21	0%
Calcium	11.4	10.9	9.7	10.9	11.4	..	10.4	11.6	10.6	11.2	9.3	11.1
Phosphates	3.2	3.4	..	4.2	4.3	..	4.3	4.0	2.8	3.8	..	3.1
Cholesterol	400	250	155	150	272	..	187	222	222	272	224	272
Urea	45	42	51	39	42	..	45	42	36	42	33	..
Nonprotein nitrogen	32.6	33.6	39.2	28	..	..	..	28	28	..	..	..

* Patients had hot flashes at one time but these had not been present for several years.
† Had gained 20 pounds, but this was only a 5 pound increase over his preoperative average.
‡ N, normal; I, increased; D, decreased; P, partial; op., operation.

REPORT OF CASE

A married man, aged 33, had a bilateral orchidectomy in 1925 for tuberculous orchitis. Following the operation signs of pulmonary tuberculosis developed, but there has been no activity of the pulmonary disease since 1929. After the operation libido was greatly diminished but sexual potency, although diminished, persisted and he had been capable of intercourse every two to three weeks. He had a normal climax of sensation and the rhythmic contraction but he believed that ejaculation did not occur. There had been considerable atrophy of the penis. Shortly after the operation he began to have severe hot flashes several times daily associated with nervousness, sweating and fatigue. Before 1925 he had weighed about 150 pounds (68 Kg.). Since the onset of the tuberculosis he had gained steadily. In March 1932 he weighed 174 pounds (79 Kg.). The increased fat was distributed chiefly about the breasts, abdomen and hips, as shown in the illustration. The scalp hair remained normal, and the beard growth may have been retarded somewhat. According to the patient's statement, the limbs and torso had previously been hairy, but within a year after castration hair on the body had practically disappeared.

At examination the patient was alert and cooperative. His skin was sallow, dry and of fine texture and showed peculiarly fine wrinkles. The scalp hair was normal and the beard tended to be slightly scant. There were a few short sparse hairs about the nipples and the axillae, and the pubic hair was scant and the distribution was of the feminine type. The examination of the eyes revealed the presence of the physiologic cup and ring; the lamina cribosa sclerae was not seen. There was some retraction of the disks upward and outward. A slight parafibrosis was seen in both eyes but in the opinion of the ophthalmologist there were no significant changes. The visual fields were normal. There was a palpable, smooth, diffuse enlargement of the thyroid, two to three times the size of the normal gland. There was no sign of activity of the pulmonary tuberculosis. The scrotum was empty and the penis smaller than normal. The prostate was from one-fourth to one-fifth the usual size. It was flat and solid but poorly defined. Vigorous massage failed to express any secretion.

The pulse rate was 80 and the blood pressure 120 systolic, 72 diastolic. A roentgenogram of the chest showed old healed tuberculosis. Roentgenograms of the sella turcica showed no abnormality. The basal metabolic rate was minus 16 per cent. Urinalyses, blood counts, and Wassermann reactions were normal. The dextrose tolerance was increased. Blood sugar estimations fasting and at the end of one-half hour, and at intervals of one, two, three and four hours after the oral administration of 100 Gm. of dextrose were 80, 116, 98, 82, 65 and 75 mg. per hundred cubic centimeters. The blood cholesterol was high, 250 mg. per hundred cubic centimeters. Otherwise, chemical analyses of the blood for urea, uric acid, creatinine, nonprotein nitrogen, chlorides, calcium, phosphorus, proteins, albumin and globulin showed no deviation from the normal.

The Friedman test showed that there was an excess of gonad-stimulating principle in the urine. Bio-assays of the blood and urine failed to reveal any male sex hormone.

7. Korenchevsky, V.: The Sexual Glands and Metabolism: I. Influence of Castration on Nitrogen and Gaseous Metabolism, Brit. J. Exper. Path. **6**: 21-35 (Feb.) 1925.

After treatment with androtin, the patient first noted an increase in energy. Later the nervousness disappeared, but the hot flashes, although diminished, persisted in a mild form. After treatment had been carried out for about a month there was marked increase in libido and potency, and sexual dreams occurred.

Physical examination has not revealed any change except for improvement in the color of the skin. The only alteration in the results of the laboratory examination was reduction of the blood cholesterol from 250 to 184 mg. per hundred cubic centimeters.

Clinical Notes, Suggestions and New Instruments

A PHASE OF STERILITY

CHARLES H. BIRNBERG, M.D., BROOKLYN

The phase of sterility to be discussed is familiar to all: "sterility in apparently normal women." A series of eighteen cases is presented. The results of treatment were so gratifying that a presentation of the observations and the method of treatment may be of interest even though the series is small.

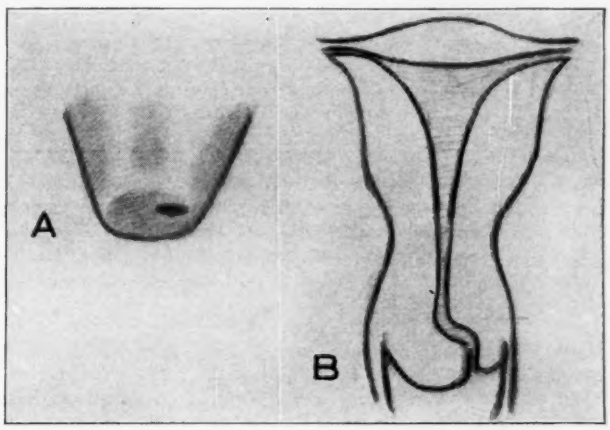
On examination, these patients showed no evidence of glandular dysfunction. The cervix, uterus and adnexa revealed no gross pathologic changes. The tubes were patent and examination of the husband's spermatozoa as to size, shape number and motility all proved normal.

The periods of sterility ranged from four to eighteen years. All known methods of treatment had been previously tried without success. These included dilation and curettage, artificial insemination, glandular therapy, corrective exercises, pessaries, diet and tubal insufflation.

When examined, these patients presented an eccentric external os, a very narrow and deviated cervical canal, and some slight displacement of the uterus. The external os instead of being located centrally as is usually noted, was situated eccentrically; either at 11 or 2, as on the face of a clock, and very rarely at 5. The cervical canal was so narrow that difficulty was experienced in passing a fine probe. The course of the canal, instead of being straight, was slightly deviated. The displacement of the uterus, usually very slight, varied. The most common displacement was retroversion.

TREATMENT

Before treatment was instituted, all patients were roentgenographed to determine the patency of the tubes.



A, eccentric os at 11 on the clock dial; *B*, deviated cervical canal.

The treatment in all these cases was identical. A gradual dilation of the cervix with Hegar dilators was instituted, until the cervix admitted a number 14 dilator. This procedure usually necessitated a period of two months. The early dilation was associated with some degree of pain. The patients presented themselves for dilation once a week. They were advised to use contraceptive measures until treatment was completed. During each dilation, with the dilator still in the uterus, the patient was put in a knee-chest position and the uterus was gently manipulated to correct any displacement. It is interesting to note that, even after a fairly large dilatation had been obtained, many patients showed a return to a very narrow canal

Results of Treatment in Eighteen Cases of Sterility

Patient	Age	Sterility, Years	Roentgen Examination	Position of Uterus	Location of External Os	Number of Treatments	Conception, Months	Delivery	Sex of Child	Procedures Previously Performed: Dilation and Curettage	Artificial Insemination	Gland Therapy	Corrective Exercises	Pessaries	Diet	Tubal Insufflation
P. G.	38	14	Both tubes patent	Retroverted	11	8	2	Low forceps	Male	Two times	No	Yes	Yes	Yes	Yes	Yes
M. K.	29	7	Both tubes patent	Retroverted	11	12	3	Midforceps	Male	Yes	Yes	Yes	Yes	Yes	Yes	Yes
L. K.	30	8	Both tubes patent	Retroverted	2	10	2	Low forceps	Male	Yes	No	Yes	Yes	Yes	No	No
L. G.	27	5	Both tubes patent	Dextriverted	2	12	2	Spontaneous	Female	No	No	Yes	Yes	Yes	Yes	Yes
C. W.	35	15	Both tubes patent	Normal	2	10	4	Spontaneous	Male	Three times	Yes	Yes	Yes	Yes	Yes	Yes
L. S.	32	8	Left tube closed	Antiflexed	5	6	10	Spontaneous	Female	Yes	Yes	Yes	Yes	No	Yes	Yes
B. G.	31	4	Both tubes patent	Retroverted	2	7	3	Low forceps	Female	No	No	Yes	Yes	No	Yes	Yes
C. H.	34	10	Both tubes patent	Retroverted	11	10	2	Low forceps	Male	Yes	No	Yes	Yes	Yes	Yes	Yes
M. C.	32	9	Both tubes patent	Retroverted	11	15	2	Spontaneous	Male	No	No	Yes	Yes	Yes	Yes	Yes
O. W.	28	5	Both tubes patent	Retroverted	11	8	3	Low forceps	Male	No	No	Yes	Yes	Yes	Yes	Yes
M. S.	42	18	Left open	Antiflexed	2	8	1	Low forceps	Male	Yes	Yes	Yes	Yes	Yes	Yes	Yes
L. S.	27	5	Both tubes patent	Retroverted	2	16	5	Low forceps	Male	No	No	Yes	Yes	No	Yes	Yes
H. Z.	27	5	Both tubes patent	Normal	2	10	2	Low forceps	Male	Yes	No	Yes	No	No	Yes	Yes
S. S.	29	7	Both tubes patent	Antiflexed	11	10	3	Spontaneous	Male	Yes	Yes	Yes	Yes	Yes	Yes	Yes
P. N.	32	5	Both tubes patent	Retroverted	11	5	1	Low forceps	Female	No	No	Yes	Yes	Yes	Yes	Yes
L. G.	38	12	Both tubes patent	Retroverted	2	10	5	Spontaneous	Male	Yes	Yes	Yes	Yes	Yes	Yes	Yes
L. R.	28	5	Right open	Retroverted	2	4	2	Spontaneous	Male	Yes	No	Yes	Yes	Yes	Yes	Yes
I. V.	33	7	Both tubes patent	Retroverted	2	10	3	Spontaneous	Male	Yes	No	Yes	Yes	Yes	Yes	Yes

and an eccentric os when they presented themselves for examination at a subsequent visit. The failure in several of these cases to respond to a dilation and curettage previously performed was attributed to this phenomenon.

When the dilation had been completed and the cervical canal permanently opened, the patient was advised to try to become pregnant.

To make this report concise and brief, the table of cases is presented. Two cases in the series were so interesting that a more detailed description is given:

Mrs. M. S., aged 42, was sterile for eighteen years. She had been operated on four years previously for bilateral closed tubes and a plastic operation was performed in the attempt to open them. A roentgen examination performed after the operation revealed a patent left tube. However, all attempts at fertilization, even after operation, failed. As noted in the table, these attempts included a dilation and curettage, artificial insemination, gland therapy and tubal insufflation. Examination of the cervix revealed an eccentrically placed os at 2 on the clock dial. Treatment was instituted Feb. 8, 1932. After eight treatments the patient missed her period and was subsequently delivered of a normal male child.

Mrs. P. G., aged 38, was sterile for fourteen years. Her history was entirely normal. Her menses were regular and normal. Examination revealed a slightly retroverted uterus and an external os eccentrically placed at 11 on the clock dial. She had been extensively treated for her sterility. Two curettages, artificial insemination, prolonged gland therapy, corrective exercises and various pessaries, had been used, without success. Treatment was instituted, June 20, 1927. The patient missed her August period. She was delivered nine months later of a normal male child.

61 Eastern Parkway.

INTRAVESICAL EXPLOSIONS AS A COMPLICATION OF TRANSURETHRAL ELECTRORESECTION: REPORT OF TWO CASES

HERMAN L. KRETSCHMER, M.D., CHICAGO

Having recently had two intravesical explosions with rupture of the bladder at the end of transurethral electroresections, I wish to call attention to this possible complication.

In this connection I wish to emphasize the following points: First, that the explosions occurred at the end of the resections; second, that they occurred in the 313th and 344th resections, respectively; third, that the complication was recognized and the patients operated on immediately; fourth, that both patients made an uneventful recovery following the surgical repair, and, fifth, that one was an intraperitoneal and the other an extraperitoneal rupture.

Practically every urologist, during the course of fulguration treatment of bladder papillomas, has at some time or another experienced small intravesical explosions.

Interesting in this connection is the report of Cassuto,[1] who reported an intravesical explosion in a patient with a middle lobe hypertrophy. He was retouching certain points when there was produced a loud detonation within the bladder. A cystoscopic examination, made eight days later, showed lacerations of the mucosa that extended into, but not through, the muscular coat.

REPORT OF CASES

CASE 1 (313th resection).—A man, aged 65, complained chiefly on admission to the hospital of frequency of urination, both day and night, of ten years' duration. For the past three months, with the exception of the two weeks prior to the explosion when complete retention of urine occurred, he was obliged to void from fifteen to twenty times at night. There had been difficult urination, accompanied by burning, for six years.

The patient was thin and somewhat emaciated; he had evidently lost some weight and appeared to be in poor condition. The liver was palpable; there was tenderness over the bladder and an acute right-sided epididymitis. There was an enormous hypertrophy of the prostate.

A blood count showed red blood cells, 4,450,000; white blood cells, 8,400; hemoglobin, 87 per cent. The blood pressure was 128 systolic, 78 diastolic. The blood chemistry showed nonprotein nitrogen, 31.6; creatinine, 1.0.

When the phenolsulphonphthalein test was done the time of appearance was four and one-half minutes; the total output for one hour was 65 per cent.

Examination of the urine revealed blood ++ and leukocytes 1,000 per cubic millimeter, and the culture yielded Bacillus proteus.

The patient was treated with an indwelling catheter and bladder irrigations.

Because of the large size of the prostate, a two-stage resection was advised. The first resection was done under nitrous oxide anesthesia, Aug. 24, 1933, at which time a bilateral vasectomy was also done. The second resection was done under sacral anesthesia, October 18. The resection proceeded very rapidly and there was no bleeding. Many of the resected pieces of the prostate were allowed to fall back into the bladder. At the end of the resection these were removed by aspiration with a Bigelow pump, after which a few small inconsequential tags were removed. At this time a loud sound was heard, and the patient stated that he had a severe pain in the abdomen. Irrigation fluid introduced into the bladder through the sheath could not be recovered. A diagnosis of intraperitoneal rupture of the bladder was made and immediate operation was done.

A large stellate tear was found on the posterior wall of the bladder. The tear in the peritoneum was closed with interrupted catgut, as was the tear in the bladder. A cigaret drain was left in the peritoneal cavity for twenty-four hours. The bladder was drained with a suprapubic Pezzar catheter.

The patient made an uneventful recovery and left the hospital, November 12.

CASE 2 (344th resection).—A man, aged 59, admitted to the Presbyterian Hospital, Dec. 13, 1933, complained of symptoms which began about three years before and consisted of frequency of urination both day and night, a very small stream, great difficulty in starting the urinary stream, dribbling, and pain in the back.

On physical examination a slight systolic blow was heard at the apex. There was moderate hypertrophy of the prostate.

A blood count showed red blood cells, 4,400,000; white blood cells, 7,900; hemoglobin, 88 per cent. The blood pressure was 135 systolic, 75 diastolic.

When the phenolsulphonphthalein test was done the time of appearance was six minutes; the total output for one hour was 65 per cent. Examination of the urine showed pus and Bacillus coli. The blood chemistry showed creatinine 1.4, nonprotein nitrogen 35.7.

Transurethral resection under sacral anesthesia was done, December 15. The resection proceeded rapidly and there was no bleeding. At the end of the resection the bladder was aspirated with the Bigelow pump. The resectoscope was inserted and a few tags were removed. A sudden dull puff was heard, but it was not as loud as in case 1. Only a portion of the water introduced into the bladder returned. A diagnosis of rupture of the bladder was made and immediate operation performed.

At the operation an extraperitoneal tear was found in the dome of the bladder. This was repaired. The bladder was drained with a suprapubic Pezzar catheter and the space of Retzius with Penrose tubing.

The patient made an uneventful recovery and left the hospital on the twenty-second day.

SUMMARY

1. In both cases there was a very small amount of bleeding.

2. The fragments of resected prostate were aspirated with the Bigelow pump.

3. After the aspiration, a few tags were removed with the resectoscope.

4. Both complications occurred well along in the series of resections.

5. Great care should be exercised in removing frequently the gases from the bladder. If the fragments are aspirated with a pump, thorough irrigation should be done to remove the mixture of gases.

1. Cassuto, A.: J. d'urol. **22**: 263 (Oct.) 1926.

6. Preferably, after aspiration, no further resection should be done.
7. This complication in no way detracts from the value and merits of this method of treatment.

122 South Michigan Avenue.

Special Articles

CONTROL OF AMEBIC DYSENTERY

CLINICAL LECTURE AT CLEVELAND SESSION

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The papers by Drs. McCoy and Chesley and Dr. Lynch in this issue are part of a series of clinical lectures on amebiasis read at the Cleveland session. Of the other five papers, those by Drs. Craig and Simon appeared last week and those by Drs. Meleney, Magath and Reed will be published next week.

Dysentery has been a well recognized clinical entity for centuries. It was not, however, until the latter half of the nineteenth century that the differentiation of specific etiologic agents, Endamoeba histolytica and Eberthella dysenteriae, was recognized. In the present discussion we are concerned only with the amebic type of infection.

The outbreak which had its focus of origin in Chicago in the summer of 1933 and which, on the basis of present evidence, seems to have been due largely to contaminated water, has stimulated and renewed the interest of both physicians and health officers in amebic dysentery. Because it is the first recorded instance in which amebic dysentery could be said to have occurred in such explosive epidemic form, this unusual outbreak has focused attention particularly on the mode of transmission and the means of prevention. Indeed, the extensive studies made promptly by the Chicago board of health, on recognition of the epidemic, later reviewed and confirmed by a special committee appointed by the Chicago health commissioner under counsel of the committee, have been extended and continued. These studies have yielded impressive lessons for the clinician, the research scientist and the student of preventive medicine. The clinician has learned that amebic dysentery must be thought of when abdominal conditions not otherwise explainable are encountered. The recognition of amebic dysentery is especially important, since specific treatment properly applied is usually successful. It is not only the internist who must be alert but the surgeon as well, since the experience in the Chicago outbreak has emphasized the fact that not a few cases of amebic dysentery are readily mistaken for conditions that require surgical treatment, such as appendicitis, cholecystitis, ulcerative colitis, hemorrhoids, and malignant growths, while it is well known that surgical intervention in either acute or chronic cases of dysentery reduces the chances of a favorable outcome.

The research worker wants to know more about the possible difference in virulence of races of amebas, the life history of the parasite outside the body, and many other unsolved problems.

The health officer finds that he must learn more about the chain of circumstances leading to endemics and the direct cause or causes of such explosive epidemics as the one referred to. When he has this knowledge, the means of prevention can be more readily discovered and applied.

One of the difficulties involved in locating the source of infection in any given case or group of cases lies in the fact that the incubation period is, generally speaking, exceptionally long and most variable. When massive infection occurs it appears that the incubation period may be as short as from seven to nine days. There is good authority for believing that sometimes it may be as much as three months or even longer, though in the recent outbreak in Chicago, in which the incubation period could be calculated fairly satisfactorily, the great majority of individuals known to have developed dysentery became sick within thirty days after infection.

SOURCE OF INFECTION AND MODES OF TRANSMISSION

In amebic dysentery, as in typhoid, the only known true source is the infected human being. The possible modes of transmission generally recognized at present are through the agencies of water polluted with infected human discharges; flies infected from feeding on or by contact with infected human discharges, transferring the infection to food; uncooked vegetables contaminated by human discharges and the human carrier frequently as a food handler. The order of importance of the various modes of infection cannot be given at present. The recent experience strongly suggests that the means of transfer of the infection is not necessarily the same in endemic and epidemic amebic dysentery, that the same mode may not prevail in different epidemics, and that two or more modes may operate in the same epidemic.

Uncooked Vegetables.—These are thought to be a source of danger chiefly when human excreta have been used as a fertilizer. This probable means of transmission can be established only by rigorous epidemiologic and biologic investigations, which we fear have not been made. If, and when, such investigations identify the particular food involved, further infection from this source may readily be prevented.

Flies.—Flies have been incriminated, especially by students of military hygiene, and have often been incriminated also under the conditions of civil life. While suspicion points to the fly as the agent in transmission of the infection, convincing evidence is usually wanting. Transmission by flies should never be assumed simply because other sources of infection are not immediately apparent, but, in the event that flies appear to be the most likely mode of transfer of the infection, the means of prevention will depend on local conditions.

Water Supplies.—When a contaminated water supply is found to be the agent of spread of infection, means of prevention may readily be applied. Boiling, of course, is effective and is frequently used as a temporary expedient, but as a permanent measure the source of infection should be eliminated. For example, it appears most probable that the Chicago epidemic was largely due to a locally infected water supply, through improper and defective plumbing. Obviously, here the

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remedy is to correct the faulty installation; to insist that new installations shall be satisfactory and through stated inspections to make necessary replacements.

Slow and rapid sand filtration and chemical treatment of water supplies have not been especially studied from the point of view of the prevention of amebic dysentery, but it is to be noted that the organism in the cyst stage is highly resistant to the usual chemical agents, such as chlorine—so resistant that contaminated water could hardly be made safe by this chemical treatment alone. Since the recognized purification methods, including coagulation, sedimentation and filtration, remove a very large proportion of the bacteria in a water supply, it is for the present assumed that it would remove also at least a corresponding proportion of amebic cysts.

The Carrier Problem.—The consideration of the rôle of the carrier in the spread of the infection has commanded more attention in recent years than all other means of transmission combined. It is so easy to assume that, because cyst carriers are found among the associates of a person sick with the disease, the source of infection has been discovered. A difficulty at once arises in the question as to why there is on the whole so little amebic dysentery in the population when it is well known that the proportion of the population recognized as carriers is very high, frequently from 5 to 10 per cent in the United States. This has not seriously discouraged advocates of the carrier transmission theory, who readily assume that only certain carriers are a menace or that only occasionally do conditions favorable to transmission become propitious. For those who advocate the importance of the rôle of carriers in the transmission of amebic dysentery the means for prevention are plain—elimination of the possibility of carriers contaminating the food of others.

While we have no inclination to argue this point with the distinguished proponents of this view, we feel that we may properly point out some of the difficulties encountered in endeavoring to carry out such a program. In the list of these difficulties is the uncertainty of the results of the examination itself. The most experienced workers in this field consider that not over a third, or a half, of the carriers will be disclosed by a single examination and that three examinations will still leave a considerable proportion (estimated at one-fourth to one-third) undisclosed. A second difficulty lies in the question of just where to stop in such an examination. In other words, just who are to be regarded as food handlers? In addition to the groups made up of cooks, waiters and others in hotels, restaurants and other eating places, one must consider whether to include dispensers of soft drinks, butchers, dairymen, milk handlers and, finally, retail grocers. Even if all these are included there is still to be considered a very much larger group made up of domestic employees and housewives. And if one agrees that all these need attention, there would seem to be a fairly good argument for making a "clean sweep" and doing carrier examinations on the whole population.

We have tried to envisage just what it would mean to test the food handlers of a city of half a million. As a very conservative figure, there would be at least 12,000 persons directly concerned in the preparation and serving of food in public eating places. As one well trained, industrious technician can examine thoroughly not more than ten stools a day, the time required to make one examination of all the food handlers in the population mentioned would be about four years, and to give the minimum of probably useful service, the examinations would require twelve years. This would take no cognizance of the turnover of food handler employees, notoriously large in this class of occupation. The 12,000 food handlers in the hypothetic situation would yield perhaps a thousand carriers, the treatment of whom might present difficulties, although it is realized that the problem of dealing with them would be distributed over a period of years.

From what has been said, it will be appreciated that we consider general examination of food handlers for the detection of ameba carriers impracticable, even if desirable, and we are in doubt as to the desirability of the procedure, excepting under special circumstances, which will be referred to later. Perhaps it might be said that we are not disposed to view carriers of Endamoeba histolytica as we do carriers of the typhoid bacillus. The biologic differences of the two organisms are great. Knowledge as to the exact modes of transmission of E. histolytica is exceedingly meager. Much study is necessary before it will be possible to estimate even roughly what advantages would accrue to any wholesale attempt to identify ameba carriers, even though the methods of identification were to be perfected to a far greater degree than those possible today.

If epidemiologic investigations point to an individual or a group of individuals as a source of infection of amebic dysentery, obviously means should be taken to identify the carrier, or carriers, through stool examinations. Appropriate steps may then be taken to segregate temporarily and treat the infected persons. Those recognizing the difficulty inherent in the detection and removal of carriers from the food handler group in public eating places suggest another procedure. They would institute a campaign of education of food handlers and employers of food handlers to make the former group "hygiene conscious" with respect to thorough washing of the hands with hot water and soap, or even with disinfectants. This appears to be an admirable program, though presenting some difficulties of accomplishment, not the least of which may be the frequent lack of conveniently located and adequate hand washing and toilet facilities. Obviously the adoption of standard requirements as to hand washing and toilet facilities and the enforcement of their use would definitely minimize any possibility of transmission through food handled by carriers.

An interesting feature in connection with the carrier state lies in the tendency for the infection to spread within a family. According to good authority it is not unusual to have most of the members of a family infected, although it may be impracticable to say in which member infection originated.

Control of Acute Cases.—The clinical case of dysentery is regarded as not a source of danger by most students of the subject, and experience seems to bear this out. Multiple clinical cases with evidence of transmission from person to person are unusual. Cases of the disease are treated in general hospital wards without evidence of transmitting the infection.

Whether any special precautions need to be taken with the bowel discharge in active cases is open to question. The accepted lack of hazard of clinical cases is often explained by the fact that the motile forms (trophozoites) die soon after discharge from the

bowel; however, motile forms and cysts are frequently discharged at the same time in clinical cases. Stools should be treated with a disinfectant to be on the safe side, especially if they are likely to be exposed where flies may have access to them. Here again intensive biologic studies should be of value.

The carrier, on the other hand, must be considered from a different point of view; that is, in regard to the public health aspects of the condition. Students are divided in opinion as to whether or not there are carriers who harbor the parasites and discharge cysts but who remain quite free from any form or symptoms of the disease. True, this point is somewhat academic, but there is no doubt that there are many carriers who suffer no inconvenience. The problem here is What should be one's attitude to such persons with respect to treatment? Should treatment be advised or should the carrier condition be ignored? There is no doubt that in these individuals symptoms of dysentery occasionally develop; indeed, there have been numerous examples in which amebic abscesses of the liver have developed without previous recognizable symptoms of dysentery. As the treatment, by means of several drugs, is relatively safe and quite effective, the situation requires that the hazard of latent infection be explained to the carrier and that he be advised to submit to treatment.

Thus it is that we have endeavored to point out the difficulties which confront the health officer in an earnest endeavor to control amebic dysentery. At the same time, realizing the lack of precise knowledge as to the transmission of the infection, we feel justified in urging moderation in measures that may be adopted. Some states and some local jurisdictions have taken measures that, from the point of view of the individual subjected to them, are truly harsh and, from the point of view of the informed student and observer are unwarranted. We know of quarantine being imposed on the patient and the other members of the family, even to the exclusion of the children from school.

The following quotations from requirements illustrate what we regard as unnecessarily severe measures. One city has the following requirements:

> The patient must be isolated during the acute stage of the disease. Bacillary as well as amebic cases are to be placarded.
>
> Carriers, not food handlers, of amebic or bacillary dysentery, cannot be released from observation and from modified quarantine until twelve successive authentic specimens of freshly voided feces, taken one month apart and examined in the City Laboratory, give negative results for Endamoeba histolytica or dysentery bacilli, respectively.
>
> Any food handler must show by laboratory test that he is free from Endamoeba histolytica or dysentery bacilli, and must not live on the premises with a case or carrier. . . . Public food handlers whose stools on examination are found to contain the Endamoeba histolytica or cysts shall not be permitted to continue in their vocation until treatment and twelve successive negative cultures, taken one month apart, have determined that they are free from the Endamoeba histolytica or cysts, he may then return to work and submit a culture every six months.

One state has the following requirements:

> Cases of amebiasis are not to be *released* from isolation until two successive laboratory examinations made on specimens of stools taken one week apart show no E. histolytica present.
>
> Carriers shall not be *released* from isolation and control until four successive authentic specimens of stool give upon laboratory examination negative results to E. histolytica. These specimens are to be taken one week apart.

Our previous experiences lead to the conclusions that such drastic restrictions are unnecessary; that further epidemiologic and biologic studies are necessary for the guidance of the health administrator in the control of food handlers, but that, when the epidemiologic investigation indicates the possibility of a carrier in an individual or in a group, the identification of the carrier should be attempted and the carrier, if found, appropriately restricted and treated.

What has been learned from the Chicago epidemic should serve to stimulate greater zeal in the protection of water supplies, with special reference to the distribution systems as well as the general supply itself. The larger cities in which the myriads of intercommunicating pipes, both public and private, supply the multiplicity of demands for water for numerous purposes other than for consumption, as for industrial purposes, cooling, flushing, sprinkling, fountain jets, and the like, would probably present the greatest possible hazards. The smaller cities and villages are not free from similar dangers. Old installations and any system under stress of overdemand may menace health. To insure safety there should be no physical connection between water supply systems that are safe for domestic use and those that are unsafe for domestic use.

The recent experiences also indicate that it is not too early to point to the goal of requiring that all rooms used for culinary work and for the storage of ready-to-eat food be properly constructed and located above the ground level, which would obviate the possibility of sewage flooding such rooms.

National Institute of Health.

PROLONGED INFLUENCES AND COMPLICATIONS OF INTESTINAL AMEBIASIS

CLINICAL LECTURE AT CLEVELAND SESSION

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Let it be said at the outset that what is meant here by the term amebiasis is the condition of infestation of the human intestine by the protozoon Endamoeba histolytica. There may be some question as to whether this conception is too limited, whether other amebas should be included, but proof of that is lacking, and this working hypothesis is acceptable.

In spite of readily available information to the contrary, it remains the common conception that this state of parasitism is rare outside tropical regions. It may be reasonably calculated, from surveys in widely separated localities, that from six million to twelve million people in the United States are the hosts of this pathogenic organism.

The difficulty in accepting this apparent fact has been, no doubt, because of the prevalent conception that amebiasis consists of amebic dysentery, whereas in fact that phase constitutes the uncommon acute flare or end result of the parasitism and is probably largely dependent on complicating bacterial infection. Amebic dysentery is by no means common in this country, even in at least some sections of the so-called subtropical South, and to emphasize the danger of it becoming so may not only be a mistake but a means of continuing the sub-

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ordination of the main problem. The larger problem relates to the state of prolonged infestation or chronic amebiasis, and this state is the phase of amebiasis least well understood by all and commonly without place in the conception of the general practicing profession.

For the purpose of this limited discussion of intestinal amebiasis it is necessary to call attention to the fact that the infection or infestation is essentially concerned with the large intestine, from the ileocecal valve to the anus. This is the natural habitat of the ameba, although at times the terminal ileum may be included. Here it becomes seated after ingestion, and here it prospers in variable condition, in accordance with factors still obscure to our knowledge. The whole story of what it may do here is not known.

The lack of knowledge has to do mainly with whether this ameba is an obligatory, facultative or accidental tissue invader, for it is apparently only in the event of penetration of the mucous lining and invasion of the tissues of the wall of the intestine that it becomes an actual disease producing agent.

There is still serious question as to whether this ameba may live at times, or in some hosts entirely, as a lumen dweller. This is a very important question, since on it hinges the individual problem in many cases. I have paid some attention to this question during routine necropsy work for a number of years, and, while no conclusion is now possible, a definite impression has been arrived at that Endamoeba histolytica may be only a lumen dweller frequently, and possibly in some hosts entirely so. That is not to say, however, that even so it cannot elaborate toxic substances absorbable from the intestinal lumen. Craig's complement fixation test demonstrates that humoral absorption of amebic products occurs and that there is some antibody production by the host; but whether it is only on the occasion of actual tissue invasion by the ameba is not known. The foundation of James's belief that amebiasis constitutes a condition of more importance to the human race than any other protozoal disease, even than malaria, and that it presents a disease as protean in its manifestations as syphilis itself must rest largely on the proposition of obligatory tissue invasion by the ameba and of humoral absorption of toxic products.

Once present in the intestine, the duration of parasitism by Endamoeba histolytica is indefinite, the possibility and actuality of its influence therefore being characteristically prolonged. An understanding of what may occur during its course is necessarily dependent on knowledge of the behavior of the ameba in its natural habitat, the large intestine.

It is capable of entering by its own efforts a mucous membrane previously normal. In the ordinary sense, therefore, it is not an accidental tissue invader. However, how thoroughly it accomplishes this is apparently dependent on factors unknown, which may be, in a sense, accidental. In consequence, the incubation period of the disease is indefinite and commonly is quite prolonged.

In a certain number of the parasitized there may be no evidence of resulting disturbance, this constituting the symptomless carrier state. Since it is not known at what time actual disease may occur in such cases, the parasite constitutes for the host concerned a constant personal menace, while possible transmission to others makes this condition of public concern. As long as such a carrier may be under close medical observation there is apparently little or no urgency about the matter, so far as he is concerned.

In a certain number of cases quite active invasion by the ameba takes place, at a variable time, with the production of amebic dysentery. While it is not the province of this discussion to deal with that phase, it is necessary to draw the picture of what may subsequently occur largely from the knowledge obtained in study of that condition, since little opportunity is given to study the intestine of the human being except after death and since the parasitism is usually in this phase at death, no matter how long its duration.

The ameba penetrates the epithelial lining of the intestinal mucosa, apparently either on the surface or within the gland crypts, more particularly the latter, in my observation. It is a motile organism, and the inflammatory hindrance to its further penetration is not so great as against bacterial invaders generally. Its travels are slow; it produces a histolyzing substance that destroys fixed tissues within which it lives. When the invasion is active and large the characteristic acute ulcerative colitis results, and the clinical state of amebic dysentery, a humoral toxemia, and a fertile ground for secondary bacterial invasion.

BACTERIAL COMPLICATION

Associated bacterial infection in acute and probably in chronic amebic colitis is not infrequently an important complication.

Such bacterial complication may play considerable part in deep and extensive ulceration and in sepsis, in a nonspecific way. In such incidental infection, streptococci and the colon bacillus play important rôles. The rare complication of large, or even fatal, hemorrhage is the result of active erosion of vessels, in which bacterial action may be important.

A not uncommon coincidental or complicating specific infection of dysentery bacilli is an important event. Confusion may result from simultaneous infection by these two entirely different agents of colonic disease, in either acute or chronic form, unless their common association is realized. Treatment of either is hindered by the presence of the other. A case of chronic amebiasis with complicating acute bacillary dysentery may be diagnosed amebic dysentery, in which case treatment designed for the latter would have no effect on the dysentery. Failure of treatment in a case of dysentery should lead to investigation for dysentery bacilli, regardless of the presence of Endamoeba histolytica. Incidentally, bacillary dysentery is probably frequently erroneously diagnosed amebic dysentery on the identification of common harmless Endamoeba coli as Endamoeba histolytica.

PERITONITIS AND EXTRA-INTESTINAL ABSCESS

It is as a result of active invasion by the ameba itself that the most important complications arise, no matter whether they are exhibited during the acute clinical phase or not. The most immediately serious relate to deep penetration into or even through the wall of the colon, sometimes with perforation and bacterial peritonitis, sometimes peritonitis without complete perforation. Whether the peritonitis may be generalized or localized depends on the location of the peritoneal penetration and the aggressiveness with which it occurs, as well, probably, as the character of the associated bacterial infection. With slow penetration of peritoneal

coverings, the infection may be localized by plastic exudate and one or more peritoneal abscesses may occur, eventually tending to fibrous localization and extensive fibrous matting in the immediate abdominal area or areas. With more abrupt perforation or rupture of colonic peritoneal surfaces, especially in the upper abdominal region, generalized acute purulent peritonitis will usually occur.

It is quite important, as well, to recognize that penetration and perforation of the wall of the colon in its posterior aspects may occur, carrying not only amebas but also bacteria, with the production of tunneled abscesses in the retroperitoneal region, not infrequently of remarkably extensive proportions and with the probable consequence of generalized sepsis. Prolonged amebic colitis of continuous or intermittent clinical character may come to this fatal issue.

ABDOMINAL ADHESIONS

As a result of extension of the infection to the outer coat of the intestine, with or without actual perforation, an important complication of either acute amebic dysentery or chronic amebiasis is the production of adhesions between the colon and coils of small intestine or other peritoneal surfaces. This may be over a single peritoneal area, it may be in several locations, and it may be quite extensive, with firm fibrous matting between the colon, over more or less of its entire course, and adjacent surfaces. Such adhesions are naturally of more or less permanent character and may exhibit their sequelae after eradication of the ameba and apparent recovery from the disease. The attendant dangers of intestinal interference and of actual obstruction or strangulation are quite obviously of prime importance.

LIVER COMPLICATIONS

In consequence of the position of the infection, a complication of the acute phase is so-called acute hepatitis, with swelling and tenderness of the liver. Whether this state is dependent on actual transportation of amebas to the liver or only of amebic or other products is not clear. It by no means necessarily results in amebic abscess and may therefore be mainly the result of portal drainage of the products of the amebas or of the colitis. It appears to be quite susceptible to treatment with emetine.

Amebic abscess, the better known liver complication, is a natural result of amebic colitis. The amebas commonly penetrate into the portal vein branches in the invaded colon wall and the number of instances of their transportation to the liver is probably not well represented by the comparatively uncommon survival and production of an abscess-like area of liver necrosis, comparable in its manner of development to the intestinal ulcer. When this does occur it becomes a very important event. At the time when evidence of this complication is produced, it may apparently have no relation to acute intestinal amebiasis: it is probably more the result of that state, however, than of the strictly chronic form. One must be on guard against this complication in a known amebic infection, while the occurrence of an apparently primary liver abscess should lead to investigation of the stool and intestine, no matter what the geographic origin of the case may be.

Other more distal complicating events of amebic origin are comparatively rare and not to be anticipated. The ameba is not commonly distributed beyond the liver, at least in disease producing proportions. Amebic abscess of the lung, possibly with even further extension in the thorax, is usually the result of penetration of the diaphragm and base of the right lung from amebic abscess of the liver, while amebic abscesses of the brain, testicle, or other areas are still more uncommon occurrences, from blood borne dissemination, and amebic ulcers of the skin are extensions from sinuses resulting from opening an infected colon or liver. All are, of course, important when they occur, and it is important to identify the nature of the offending agent and relate it to intestinal amebiasis.

AMEBIC APPENDICITIS AND INTESTINAL GRANULOMA

Two complicating events, of direct relation to the intestinal invasion, are infection of the vermiform appendix and amebic granuloma of the colon. Amebic appendicitis is a natural extension from the colon and is usually continuous with amebic ulceration of the cecum, although it has been reported as occurring independently of neighboring cecal ulceration. In view of the tendency of amebic colitis to be prominent in the reservoir portion of the large bowel, it should not be surprising if amebic appendicitis should be a common companion of amebic typhlitis. As an observable matter, however, it seems that except as a part of active amebic colitis it is comparatively unimportant. In study of some thousands of appendixes removed at operation I have never recognized an amebic appendicitis, although amebas have been seen in the lumen. That is not to say that a bacterial appendicitis may not be imposed on an amebic infection so as to hide it. However, it will require much further evidence to show that any material part of common appendicitis is of such origin or association.

From a practical working standpoint it is unnecessary to take amebic infection into account in the actual case of acute appendicitis demanding operation, except in a case of known amebic dysentery. It is important, of course, to take the ameba into account in the study of the appendix and in the event of continued intestinal trouble following acute appendicitis or in the clinical suspect of so-called chronic appendicitis. It is possible, although unproved, that an amebic harbor in the appendix may be more difficult of control than in the intestine proper.

Amebic granuloma of the colon has been recorded as a complicating event, particularly of prolonged amebiasis. In its occurrence there may be confusion with carcinoma or with a localized syphilitic or chronic tuberculous lesion, while it may be productive of intestinal occlusion and obstruction. In case of a granulomatous ulcer of the colon the possibility of amebic origin should be taken into account. As a condition to be separated from regulation amebic ulcer and occasionally related intestinal strictures, it will not be commonly encountered.

PROLONGED AMEBIASIS

It is in the minds of close students of intestinal amebiasis that what usually happens in the natural prolonged state of this infestation is the recurrent production of invasion of the lining of the large intestine, of proportions insufficient to produce a characteristic clinical disease but a chronic local disease and low grade systemic toxemia; that the nature of many obscure colonic and associated constitutional states of illness may be solved by proper examination of the stool and the large bowel.

While it is not my purpose to discuss this apparently common and important chronic intestinal amebiasis in detail here, it must be said that it is a most fertile field for erroneous diagnosis and treatment. The clinical picture is indefinite, constituted mainly of a below-par state, usually with abdominal soreness, tenderness, or pain, perhaps with neuritis, neurosis, joint and muscle pains, and other vague and indefinite symptoms. In its evaluation, roentgen study of the colon is most important but not in itself conclusive, while sigmoidoscopic examination is of great advantage in determining lower bowel involvement. Diagnosis must depend on reliable identification of Endamoeba histolytica in the stool; and although the presence of the ameba does not positively prove the case, it at least warrants therapeutic attack. The diagnosis of intestinal amebiasis, no matter how clear the clinical state may appear, in the face of persistent absence of the ameba is not justifiable. It is equally unjustifiable to treat a case of colitis, whether dysenteric or not, and no matter how prolonged, without taking into full account the possibility of amebic infection.

Prolonged amebic colitis commonly exhibits recurrences of the active dysenteric state, often, however, of comparatively minor character. This means periods of activity of invasion and extension followed by recuperation and at least partial healing. It appears that in the less aggressive form there is the production of superficial submucosal abscesses and ulcers, healing and recurring, perhaps in the cecum, sigmoid or rectum, perhaps simultaneously in several areas of the colon. The subject of such an infection is in danger of more aggressive invasion and of serious complication at times unforetellable and is therefore practically constantly menaced.

In the more aggressive prolonged disease there are periods of active and extensive ulceration and dysentery with intermissions of arrest and healing, leading into possible cicatrix production, stricture and colonic deformity of permanent and function disturbing proportions.

One has only to see the colon of prolonged amebiasis after extensive fibrosis, the product of healing and segregating reaction, with variable ulceration, contracting scars, strictures and dilatations, to appreciate the difficulty or impossibility of cure of such a condition, even on the eradication of the ameba.

It has not been within the purpose here to discuss either diagnosis or treatment of amebiasis, but any discussion of the prolonged infestation is incomplete without warning of the necessities in both considerations.

Positive diagnosis of intestinal amebiasis cannot be made without determining the presence of Endamoeba histolytica: no diagnosis of chronic amebiasis or of any of the complicating events can or should be maintained without this information.

In estimating the influence of treatment, no cure of the infection can be claimed without full proof of the absence of the ameba. Further, in addition to the eradication of the ameba it is necessary to have in mind the nature of the possible damage, in case of extensive and, particularly, prolonged colonic invasion, and the healing, which must be effected before recovery may be claimed. That is to say, when cicatricial deformity of the colon and extensive peritoneal fibrosis have resulted from prolonged or deep and extensive infection, the damage is more or less permanent, even if the ameba is eradicated; and, further, the elimination of the ameba at this stage is most difficult of accomplishment, and problematic even when apparently concluded.

Medical College of the State of South Carolina.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. H. A. CARTER, Secretary.

LUXOR B ALPINE SUN LAMP ACCEPTABLE

This is a quartz mercury vapor arc lamp designed for therapeutic ultraviolet applications. It is available in two forms, one for direct current 110 volt operation, the other for alternating current operation. It is manufactured by the Hanovia Chemical & Manufacturing Company of Newark, N. J.

The two lamps employ the same type of highly polished chromium steel reflector used on the Super Alpine Sun Lamp. The hood and reflector may be rotated around the burner and secured in any position throughout an angle of 90 degrees by means of a handwheel located on the right side of the hood. The opening is 12 by 14 inches, and at a distance of 30 inches from the burner a plane surface receives relatively uniform radiation on an area measuring 5 by 2 feet.

Luxor B Model Alpine Sun Lamp

The hood is supported on a telescopic upright, rising from the center of the electrical control housing, which is mounted on a tripod base equipped with three rubber-tired ball-bearing casters.

The light generator consists of a highly evacuated tubular vessel constructed entirely of fused quartz and equipped with the W-type Hanovia electrodes. The burner mounting is devised to maintain the burner at the correct temperature for maximum output.

The electrical circuit for the direct current lamp consists of a rheostat and a double poled toggle type switch, the latter being located on the inlet cable.

The electrical circuit for the alternating current lamp consists of a combination alternating and direct current supply to a three poled burner. Its use results in enhanced intensity and efficiency for the alternating current burner, improves steadiness of the arc, insures ease of lighting, and improves burner life.

The Luxor B Alpine Sun Lamp produces the characteristic spectrum of mercury vapor arcs, and the spectral energy distribution is the same as that previously given for the Super Alpine Sun Lamp, a product already accepted by the Council.

The intensity of ultraviolet radiations 1,850 to 3,200 angstroms at a distance of 30 inches from the burner is at least 500 microwatts per square centimeter for the alternating current lamp, and at least 300 microwatts per square centimeter for the direct current lamp.

Operating Characteristics

Alternating Current

Line voltage: 110 to 120 volts 60 cycle (25 cycle requires special equipment)
Starting Current: 8 amperes
Operating current: 5 amperes
Burner voltage: (A. C.) 135 volts
(D. C.) 40 volts

Direct Current

Line voltage: 105 to 125 volts
Starting current: 7 amperes
Operating current: 3 amperes
Burner voltage: 70 volts

The Luxor B Alpine Sun Lamp, therefore, is included in the Council's list of accepted devices.

Committee on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

HAWAIIAN FINEST QUALITY PINEAPPLE

(1) AURORA BRAND BROKEN SLICES AND SLICED
(2) BING BRAND CRUSHED AND TIDBITS
(3) BLOSSOM BRAND BROKEN SLICES
(4) CLOVERHILL CRUSHED AND SLICES
(5) FOREST PARK BRAND CRUSHED, SLICES AND TIDBITS
(6) GOOD KIND CRUSHED, SLICES AND SALAD CUT
(7) LEHMANN'S DE LUXE CRUSHED AND SLICES
(8) NONE-SUCH BRAND CRUSHED, SALAD CUTS AND SLICES
(9) SAVOY CRUSHED, SALAD CUT, SLICES AND TIDBITS
(10) WEDGWOOD BRAND CRUSHED AND SLICES

Distributors.—(1), (6) and (9) Steele-Wedeles Company, Chicago. (2) McTighe Grocery Company, Binghamton, N. Y. (3), (4) and (8) Durand-McNeil-Horner Company, Chicago. (5) and (10) Downing, Taylor Company, Springfield, Mass. (7) Lehmann-Higginson Grocer Company, Wichita, Kan.

Packer.—Hawaiian Pineapple Company, Ltd., San Francisco.

Description.—Canned pineapple packed in concentrated pineapple juice with added sucrose. The same as Dole Hawaiian canned pineapple products (THE JOURNAL, April 8, 1933, p. 1106, and April 29, 1933, p. 1338).

IRRADIATED VITAMIN D PASTEURIZED MILK

(1) ABBOTTS
(2) BORDEN'S
(3) BORDEN'S
(4) BOWMAN DAIRY COMPANY'S
(5) CAPITOL DAIRY COMPANY'S
(6) DODDS
(7) DRIGGS DAIRY'S
(8) GRAFFENBURG DAIRY'S
(9) PHENIX DAIRY
(10) REID'S UNION DAIRY'S
(11) WILLOW BROOK DAIRY'S

Distributors.—(1) Abbotts Dairies, Inc., Philadelphia. (2) Borden's Farm Products Company of Illinois, Chicago. (3) Borden's Farm Products Company, Inc., New York. (4) The Bowman Dairy Company, Chicago. (5) Capitol Dairy Company, Chicago. (6) Dodds Alderney Dairy, Inc., Buffalo. (7) Driggs Dairy Farms, Inc., Toledo, Ohio. (8) Graffenburg Dairy, Utica, N. Y. (9) Phenix Dairy, Houston, Texas. (10) Reid's Union Dairy, Brooklyn. (11) Willow Brook Dairy, Mount Vernon, N. Y.

Description.—Bottled pasteurized vitamin D milk irradiated with ultraviolet rays (patent No. 1,680,818).

Preparation.—The milk complies with legal requirements and is pasteurized by the standard holding method. For description of irradiation, see THE JOURNAL, Oct. 7, 1933, page 1155.

Vitamins.—Clinical investigation shows this milk to be a reliable antirachitic agent if the proper amount is used. Contains 135 U. S. P. X (Revised, 1934) vitamin D units per quart.

Claims of Distributors.—Irradiated antirachitic pasteurized milk having otherwise the flavor and food values of usual pasteurized milk.

SNOW KING DOUBLE ACTION BAKING POWDER

Manufacturer.—The Snow King Baking Powder Company, Cincinnati.

Description.—Baking powder consisting of starch, sodium bicarbonate, sodium aluminum sulphate and calcium acid phosphate.

Manufacture.—The raw materials and ingredients used are purchased under definite specifications for composition, purity, granulation, etc., all of which are checked analytically by the company laboratories to assure conformity with specifications and food law requirements.

Definite quantities of the ingredients are carefully weighed, thoroughly mixed and sifted; the mixture is stored in tanks until satisfactory laboratory tests assuring proper mixing and composition have been made, after which it is automatically filled into cans, which are labeled and varnished. A test baking check is made on each individual batch.

Analysis (submitted by manufacturer).—

	per cent
Total carbon dioxide (CO_2)	15.3
Available CO_2	15.1
Residual CO_2	0.2
Aluminum (Al_2O_3)	5.5
as Al	2.9
Arsenic (As)	less than 1.0 part per million
Calcium (CaO)	1.2
as Ca	0.9
Iron (Fe_2O_3)	traces
Lead (Pb)	less than 2.0 parts per million
Magnesium (MgO)	0.2
as Mg.	0.1
Phosphorus (P_2O_5)	3.03
as P	1.3
Sodium (Na_2O)	10.9
as Na	8.1
Sulphur (SO_3)	17.4
as S.	6.9
Starch	40.0

Claims of Manufacturer.—For use in all baking and cooking recipes calling for baking powder. The product and ingredients conform to United States Department of Agriculture requirements as expressed in its definition and standard for baking powder. The two acid reacting ingredients for liberation of the leavening gas, because of their different solubilities, produce a "double leavening action" in the dough. The first action releases a portion of the leavening gas in the cold dough; the second releases the remaining gas in the heated dough in the oven.

FONTANA'S SEMOLINA MACARONI BUTTERFLIES
FONTANA'S SEMOLINA MACARONI SEA SHELLS
FONTANA'S SEMOLINA MACARONI DAISIES
FONTANA'S SEMOLINA MACARONI ALPHABET
FONTANA'S SEMOLINA MACARONI
FONTANA'S SEMOLINA ELBOW MACARONI
FONTANA'S SEMOLINA SPAGHETTI
FONTANA'S SEMOLINA ELBOW SPAGHETTI
FONTANA'S SEMOLINA SALAD MACARONI

Manufacturer.—Fontana Food Products Co., San Francisco.

Description.—Macaroni of various sizes and shapes prepared from durum wheat semolina.

Manufacture.—The sifted durum semolina and water, in definite proportions, are mechanically mixed and kneaded. The resulting dough is forced through various dies to form the different shapes of macaroni products, which are dried on racks under controlled conditions and packed in cartons.

Analysis (submitted by manufacturer).—

	per cent
Moisture	12.5
Ash	0.6
Fat (ether extraction method)	0.5
Protein (N × 5.7)	12.9
Reducing sugars as dextrose	0.6
Sucrose	0.1
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	73.2

Calories.—3.5 per gram; 99 per ounce.

Claims of Manufacturer.—Complies with the United States Department of Agriculture definition and standard.

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SATURDAY, OCTOBER 13, 1934

OXALIC ACID IN METABOLISM

Theories that include oxalic acid as an intermediate product of normal metabolism have received little serious consideration, because of its known toxicity. A number of the more popular ideas concerning oxalic acid in foods have been critically evaluated by Kohman[1] of the National Canners Association Research Laboratories in Washington, D. C. Although an accurate, reliable method is not available for the determination of oxalic acid in foods, Kohman has compiled a table presenting a close approximation of the content of this acid in some common foods. Almost every fruit and vegetable contains oxalic acid; pineapple and leafy vegetables, notably spinach, are strikingly high in this respect (from 0.01 to 0.03 and from 0.29 to 0.69 per cent, respectively). The author points out, however, that an individual would be required to consume from 2 to 5 pounds of a food containing 0.5 per cent of oxalic acid in order to secure an amount that might be considered a toxic dose. It appears that there is considerable unfounded misapprehension concerning the evil effects of oxalic acid in the diet.

The ubiquitous distribution of oxalic acid in fruits and vegetables stimulates questions concerning the metabolism of this compound. Recent investigations from Japanese laboratories[2] have supplied interesting information concerning the origin and fate of oxalic acid in the organism. This acid is apparently a normal product in the animal body, occurring in the blood in a concentration varying from 3 to 4 mg. per hundred cubic centimeters. Whereas a diet of either protein or fat had no effect on the level of oxalic acid in the blood, the ingestion of a carbohydrate diet by human subjects caused a marked rise in the oxalic acid concentration. The intravenous injection of large quantities of dextrose into rabbits resulted in a striking rise in the blood oxalic acid level; maximum values were obtained approximately two hours after the dextrose injection, the concentration thereafter gradually diminishing and reaching the normal level within from five to six hours. This apparent relationship between oxalic acid and carbohydrate metabolism is of interest in view of the fact that derangements of carbohydrate combustion are frequently attended by an increased excretion of urinary oxalic acid. It has been demonstrated, for example, that insulin effects an increased ability of the organism to burn this organic acid.[3]

Oxalic acid assumes particular importance in metabolism when its possible effects on calcium utilization are considered. True, the calcium that is so generally ingested in foodstuffs would tend to detoxicate a portion of the oxalic acid present by the formation of insoluble calcium oxalate; the properties of the latter compound make its absorption unlikely. However, this mechanism at the same time deprives the organism of calcium, an element often present in insufficient amounts in the ordinary diet. It becomes evident, therefore, that the metabolic reactions involving oxalic acid may be of several types. Clarification of these processes must await further information regarding the rôle and fate of the acid in metabolism. This type of result would also aid in evaluating circumstances that determine possible deleterious effects of foods with a high oxalate content.

1. Kohman, E. F.: J. Am. Dietet. A. **10**: 100 (July) 1934.
2. Suzuki, S.: J. M. Sc. Japan **2**: 291, 373, 401, 1934.

THE NOMENCLATURE OF GLANDULAR PRODUCTS

The novice in endocrinology finds himself bewildered not only by the tremendous number of recent contributions to glandular physiology but also by a new and unfortunately confused vocabulary. Ordinarily the addition of a few hundred words to the dictionary would concern chiefly the lexicographers; but the many names, synonyms (real and alleged) and trade marks in this field are so liberally interspersed in modern medical literature that the latter is all but incomprehensible to any one except an expert. In addition to the many terms invented from time to time by research workers in many parts of the world, the situation has been made even more difficult by the tendency of each of a number of commercial firms to register its own trade mark for a product to which otherwise, in most cases, it has no proprietary claim. The language of medicine appears to have been more burdened than enriched by the new nomenclature.

Perhaps the most striking case in point is that of the use and misuse of the numerous designations applied to estrogenic preparations. These are variously called female sex hormone, estrin (oestrin), follicular hormone, folliculin, theelin (ketohydroxyestrin, estrone), theelol (follicular hormone hydrate, trihydroxyestrin, estriol), and by such trade names as amniotin, progynon, emmenin and menformon. Still other names are employed. Many of the foregoing terms are not satisfactory designations and they may not all be considered synonymous. Theelin and theelol are recognized by the Council on Pharmacy and Chemistry as

3. De Lucia, P.: Boll. d. Soc. ital. di biol. sper. **4**: 756 (June) 1929.

nonproprietary names for two crystalline compounds isolated from the urine of pregnant women. When these crystalline substances are referred to they should be designated by these names (English workers subsequently proposed the synonymous terms estrone and estriol). But at the present state of knowledge it is not warranted to refer to the estrogenic agent of unknown constitution in the blood stream, ovarian follicular fluid, certain plants and other sources by these names. All that is known is that these are "estrogenic substances"; they should therefore be so designated, and the source stated, until the chemical relationship of each particular substance to theelin and theelol is established. The only satisfactory method at present available for determining the presence of such agents is the production of estrus (or preestrual changes) in castrated animals. To speak of the "estrogenic factor" in the blood, for instance, is therefore clear, concise and unmistakable. If this factor is later shown chemically to be theelin or theelol, it may then be so designated. Such terms as "female sex hormone" imply more than may be true; there is doubt that such a hormone actually exists. Estrogenic substance may be found in male urine and it has been claimed that a substance having the characteristic actions of the testicular hormone has been obtained from female urine. There appear to be only slight chemical differences among theelin, theelol and the substance crystallized from male urine that affects the accessory male sexual apparatus. It is not known whether the estrogenic substance in male urine has any function in the male organism or whether the principle in female urine having the effects of the testis hormone has any essential activity in the female. It is therefore preferable to avoid referring to either male or female "sex hormones."

The situation with respect to the pituitary is hardly better. Little confusion would exist if it were customary to designate new and relatively impure extracts according to their effects, instead of coining new names for them. Thus such phrases as "growth hormone," "follicle-stimulating factor," "luteinizing principle" and "lactogenic factor of the anterior pituitary" convey the exact meaning intended. They are as clear to the novice as to the expert. In contrast, "prolan" is applied both to the gonadotropic factors of the pituitary and to the anterior pituitary-like gonadotropic principle from the urine of pregnant women; these were once thought identical, but more recent evidence indicates that they are different. "Antuitrin" is a trade name for an extract of the anterior pituitary; "antuitrin-S" is used to designate the anterior pituitary-like gonadotropic factor from the urine of pregnant women. Many other illustrative examples could be adduced.

By the use of short descriptive phrases, preferably instead of coined names but at least in conjunction with them, many unfortunate misapprehensions and much confusion may be avoided.

MAHLON LOCKE—FOOT TWISTER EXTRAORDINARY

The publicity accorded to Mahlon Locke, Canada's newest contribution to faith healing, has aroused great interest among both the medical profession and the public. The profits to be derived from the sale of shoes to persons suffering with chronic diseases affecting the bones and joints has induced many a department store to add a Locke department to its shoe section. Disciples of the Canadian healer journey about with a motion picture film demonstrating Locke himself in action at the shrine in Ontario. In this picture the stage is set for the introduction of Dr. Locke by pictures of trains, motor cars and other means of transportation bringing the searchers for relief from pain and crippling to Williamsburg. Then are seen his diplomas in medicine. The doctor is next viewed at home and one is privileged not only to meet him in person but to view his hands in a close-up, with all the impressiveness associated with the picture of two hands gigantically enlarged to the size of a motion picture screen. The doctor is observed, appropriately enough, leading his prize bull around on a halter. The doctor is then shown at work, sitting in a swivel chair while human beings come toward him from eight radiating paths to put their feet trustingly in his lap. Either just before or just after he receives the feet he also receives a dollar bill, which is deposited in his pants pocket. He then bends the foot outward and downward and the patient moves on. Some sort of an associate bends the hands of the patients and there are adjacent quarters in which women assistants wiggle the arms, bend the neck hither and thither and bend the back of the patient over a table. A few patients are introduced who say that they have been residents in Williamsburg for several years and have been taking the treatments day by day; they assert that their conditions are improved. There is no serious attempt at diagnosis of disease, nothing resembling a scientific study of the anatomy or physiology of the body as a whole—in fact, not even any serious study of the feet.

Then the scenes change to reveal the diploma in shoe fitting, given to those who study under Locke's system, and also a picture of the astute gentlemen who have evolved from this Williamsburg shrine of faith healing a massive shoe business. Such department stores as Marshall Field's in Chicago and Simpson's in Toronto are devoting whole sections to a participation in the profits to be derived from the Locke publicity. Mr. Hearst promotes his *Cosmopolitan* magazine by articles which Rex Beach is writing concerning the foot twister, and newspaper advertisements send prospective readers and applicants for foot twisting and Locke shoes to the *Hearst's International Cosmopolitan* as the accredited publicity source.

It should be obvious to any one that what Locke does is no more than what chiropractic does, much less than what osteopathy does, and probably much the same

thing that Aimee Semple McPherson Hutton, Emile Coué, Alexander Dowie and many of the disciples of Mary Morse Baker Glover Patterson Eddy have done. It represents psychologic suggestion reenforced by the laying on of hands; perhaps in a few instances the pulling of an adhesion such as any masseur might attempt. If bones are put back into place, what makes them stay back? While it pays, it pays handsomely, and when it moves on something else of the same nature usually comes in its place. In better times, institutions for the purveyal of merchandise which have for long held high standards would perhaps have turned thumbs down on such an obviously charlatanic promotion, but in these times the dollars are hard to get and the department stores seem not to be averse to a share in the profits of faith healing.

The activities of Dr. Locke are a burlesque on the scientific practice of medicine. His promotion is a violation of every traditional, ethical tenet! Were not the results so lamentable, the comedy would be laughable. There are some who say that even psychologic relief for the chronic arthritic patient is worth while, regardless of the means by which it is accomplished. The reaction on the scientific practice of medicine and the chagrin and disappointment of those seriously sick do not permit this laissez faire attitude. Moreover, many a person who might be benefited by scientifically applied physical therapy and by competent orthopedic surgery is spending hard-earned money to make the long trek to Williamsburg in search of a pot of gold which those at the end of the rainbow are quite consistently saving for themselves. If Locke's practices are right, the medical schools might just as well stop teaching anatomy, physiology, pathology and diagnosis. But they need have no fears. History shows that such charlatans and such systems come and go, while scientific fact and knowledge go on forever.

Current Comment

MOTION PICTURE OF HEADQUARTERS ACTIVITIES

From time to time the suggestion has been made that a motion picture be prepared of the headquarters activities of the American Medical Association so that county and state medical societies as well as other organizations might be informed of the nature of the work in the headquarters office. Last year the Board of Trustees appointed a committee, headed by Dr. Austin A. Hayden, to supervise the preparation of a 16 millimeter film for this purpose. The film has now been prepared and has already been shown at a meeting of the Chicago Medical Society and at a meeting of the editors and secretaries of state medical societies. As yet but one copy of the film is available. It shows the personnel of the various bureaus and councils of the Association, the executive officers, the members of the board of Trustees and of the House of Delegates, the composing, printing, binding, addressing and mailing departments, the manuscript editing rooms and the library, and many other activities of the headquarters office. Arrangements have been made to lend this film to county and state medical societies together with a projector and a screen. Work on the picture is proceeding and it is not yet considered a finished task. It is planned to add pictures of all the different councils and official bodies so that the film will constitute a true record of the history of the Association at this time. Adequate subtitles explain the nature of the work shown, but the affairs are so complex that space is simply not available in a subtitle to indicate fully the significance of the various activities. The Board of Trustees and the office of the Secretary of the Association will be interested in hearing from county and state medical societies or other bodies that are interested in showing this film.

IRON AND COPPER RETENTION IN CHILDREN

As a result of experimental studies during the last six years, the necessity of both iron and copper in the cure of "nutritional" anemia, the condition resulting from the consumption of an exclusive milk diet, has been emphasized. Efforts have been made to cure various types of human anemias by supplementing the therapeutic doses of iron with copper. However, one commentator [1] has stated that the claims for the efficacy of copper in the treatment of clinical anemias have not thus far been convincing. Nevertheless the known indispensability of iron and the possible essential nature of copper lend interest to a recent investigation by Daniels and Wright [2] of the requirements of these two metals in children. Eight normal children (three girls and five boys) were given an adequate diet, and the total intake, loss and retention of iron and copper were determined in fifteen experimental periods. On daily intakes of from 0.57 to 0.75 mg. per kilogram of body weight there was a considerable variation in retention among the different subjects, the values ranging from 0.12 to 0.27 mg. daily per kilogram of body weight. The conclusion was reached that 0.6 mg. of iron daily per kilogram "should meet the needs for maintenance and growth of the average child of the age studied." With daily consumptions of from 0.069 to 0.113 mg. of copper per kilogram there was observed daily retention of from 0.012 to 0.048 mg. per kilogram, the diets containing the most copper favoring the greater storage. It was tentatively suggested on the basis of the observations that at least 0.1 mg. of copper per kilogram of body weight should be contained in the daily food of children of preschool age. It is of interest that in this investigation almost all (from 93 to 98 per cent) of the excreted iron and the copper appeared in the feces. The fact that on the higher levels of retention of copper there was a fairly close proportion between iron and copper retention (5:1) may indicate that there is in man also an interrelationship between the metabolism of iron and of copper.

1. Smith, A. H.: Nutrition, Annual Rev. Biochem. **2**: 299, 1933.
2. Daniels, Amy L., and Wright, Olive: J. Nutrition **8**: 125 (Aug.) 1934.

Medical Economics

SUCCESSFUL INDUSTRIAL GROUP PRACTICE

M. S. BLOOM, M.D.
BINGHAMTON, N. Y.

In THE JOURNAL, over a year ago, I[1] discussed a plan of industrial group medicine referred to as the Spaulding plan and sponsored by Spaulding Bakeries, Binghamton, N. Y. At that time the plan had been successfully functioning for a full year. The broad circulation of THE JOURNAL, combined with an apparently widespread interest in the question of group medicine, brought inquiries and comments from every section of the United States, and from some sections of Canada. This interest made me wonder whether another article dealing with recent developments in the plan might not be worth while.

The Spaulding plan, of which I am medical adviser, has now definitely passed the experimental stage and has become a permanent organization offering various medical services to employee members of Spaulding Bakeries. I was chosen medical adviser of this plan because the sponsoring company felt that some one with medical training was necessary to administer the medical problems that arose. Apart from my general interest in the practical philosophy of group medicine as exemplified by this plan, my interest is academic.

Concerning this plan, a most significant point to the medical and dental professions is the provision for freedom of choice. It is the operating routine under this plan for officers never to suggest or urge on a member of the Spaulding Employees' Mutual Benefit Association to consult any particular doctor or dentist. When an employee obtains a physician's slip, the employee is simply asked what doctor or dentist he wishes to consult. No other questions are asked. The employee goes to whom he pleases for treatment. Occasionally employees wishing eye examinations, tonsil operations or other procedures ask the secretary or other officers to suggest a specialist. All officers are instructed, however, to give the name of all doctors performing the particular type of service desired but not to recommend any one specialist.

Accordingly, various evils are avoided by following strict rules governing the practice and preservation of the principle of freedom of choice. Under the Spaulding plan there is no possibility of politics playing a part in the choice of physicians and dentists, with a consequent lessening of efficiency in the plan and inevitable criticism by the medical and dental professions. Further, no loopholes are left for the employee to complain if he should not be satisfied with the physician or the service rendered. More important, perhaps, the plan recognizes the integrity and legitimacy of that ethical principle among doctors and dentists that treatment of the sick should be left to professional care and judgment, unhampered by lay intervention or pressure of any kind or sort.

As a result of this unyielding policy not to abridge or attempt to abridge the professional concepts of what is and what is not good medical practice, this plan has earned good will for itself among the doctors and dentists of the community. If I am permitted to make a conclusion before I conclude, it is this—I feel confident that it is possible to provide for satisfactory group medical practice, in some instances at least, without exciting controversy and rancor within the profession and without attempting to usurp from the physician and dentist the power and right to dictate the fundamental principles of professional practice.

1. Bloom, M. S.: A New Experiment in Industrial Medicine, J. A. M. A. **100**: 1869 (June 10) 1933.

Let it first be understood just what the Spaulding plan is and what it does. Then I will draw some broad conclusions, rooted in facts and experience, which indicate or suggest how the machinery of this plan fits social patterns as they exist today.

Briefly, this is the general plan: All employees of the bakery may become members on agreeing to abide by the by-laws and paying their weekly dues. Membership dues are governed by a wage classification of four groups and run from $0.20 to $0.45 per week. The company makes an equal contribution; that is, for every dollar in dues paid by the members, the company also contributes one dollar. The company contribution is essential to the financial success of the plan, as few industrial groups indeed could be found to bear willingly the whole burden.

There are now 200 members in the Binghamton division. Members are entitled to major and minor operations, hospitalization for thirty days in any one year (with a three dollar per day allowance for a room), plus all other hospital costs. Both office and house calls are permitted, including services of specialists. All laboratory fees and x-ray charges are paid by the association. Each member is entitled to ten weeks of sick benefits in any one year, these benefits running from $7.50 to $20 a week and determined by the member's respective wage classification. Dental services are confined to the x-rays and extraction of teeth. Certain limits other than those mentioned are made for various expenditures. For instance, house and office calls are limited to $50 a year per member. Total expenditures for any one member are limited to $350 a year, as provided by state law for organizations not incorporated.

Last December some of the features of this plan were extended to dependents of employees, the services including office calls, the allowance for the cost of an office call toward a house call, and laboratory and x-ray charges. Employees must be members of the general association to be entitled to these services for their dependents, and the additional dues constitute a flat $0.25 a week for each member. In this case the company contributes one-half the amount contributed by the members. There are now approximately 100 members in the defendants' division, and the number of dependents varies from one to eight per family. When the dependents' division was organized the company had grave doubts of the division's future success, yet in less than a year a satisfactory surplus has been accumulated and further services may be extended as the growing surplus warrants.

With some minor change the general plan was offered to the employees at the Elmira plant of Spaulding Bakeries in December last year, and there are approximately 100 members in this division. Indications are that a protective surplus will have been built up by the Elmira division at the end of the fiscal year. Another division is now being organized in the Oneonta plant and will have a membership of approximately fifty.

This, then, is the Spaulding plan as it exists today. In an article of this kind, much detail must be avoided; hence I have only briefly sketched the plan. The success of the plan in Binghamton led to its adoption by two other firms in the city.

The Agfa Ansco Corporation, manufacturers of cameras, photographic films and other sensitized products, which has approximately 1,000 employees, has had in operation on a contract basis a mutual benefit association since May 1, 1929. May 1, 1933, a project similar to the Spaulding plan was instituted, which has been equally successful.

Truitt Brothers, shoe manufacturers employing 250 people, adopted the plan early in April of this year and is repeating the success of the other group plans.

It may be of some interest to point out the percentages of expenditures made under the Spaulding plan for physicians' services, sick relief, hospitalization and dentists' services. They are given in the accompanying table.

Percentage of Expenditures

	Physicians	Sick Relief	Hospitalization	Dentists
1932-1933....	73.2	10.7	8.2	7.9
1933-1934....	66.2	12.3	13.8	7.7

There is no question in my mind or in the minds of the executives of Spaulding Bakeries that the interest and cooperation of the physicians and dentists in a given community are an essential consideration in the success of a plan of this kind. The right of the physicians and dentists to have their ideas known and respected before the plan is launched cannot be disputed. Before organizing a division in any community, executives of the company meet with the local medical society's committee on medical economics to discuss the whole plan and fully explain the details. Where divisions have been established, local physicians and dentists have invariably and enthusiastically approved this organization and have given splendid cooperation. The Spaulding plan has the approval of the New York State Medical Association and of the local medical societies as the plan relates to the ethics of group practice.

If this group plan deserves to be called successful, it certainly should meet rather fully the practical requirements of the profession, the employee and the employer. With the principle of freedom of choice unrestricted, every physician and dentist in the community has an equal opportunity to serve the members. The recognized fee schedule of the community is respected and preserved, and no attempts are made to bargain for medical and dental costs. All the association asks are standard fees for standard services.

Equally significant to the profession is the sureness of collections, because bills are paid fully and promptly. Even in these times the secretary finds it difficult to obtain statements promptly from many members of the profession, perhaps because doctors and dentists are sure of punctual payment. It seems possible that the profession as a whole derives more revenue from the men and women under the plan than if there were no plan. Experience proves that disease is sometimes neglected because an individual fears the doctor's bill. With payment for treatment guaranteed, members go to their physician without fear of the cost, yet few cases have been found in which privileges are abused.

No attempts have been made to analyze the benefits to be derived by the sponsoring company itself. That there is less absence from work on account of illness seems a natural conclusion to be drawn. The medical needs of the employees are certainly better provided for, and proper treatment is not so often neglected. Periodic physical examinations under the plan often disclose neglected conditions, which are pointed out by the examining physician. It has been the experience in organizing various divisions of this plan that a great many minor operations are necessary at first, which would seem to indicate negligence on the part of the individual before becoming a member of the association. It would seem that an employee, largely freed from the burden of unusual medical costs to himself, would be more happy and content in his work, and perhaps more efficient. There is no quantitative method for determining this point.

In the more serious cases it is possible to get medical consultation more quickly, because multiple costs are borne by the association instead of by the patient himself; hence he more readily accedes to the suggestion for consultation. One might perhaps be accused of injecting too much theory to say that probably the general state of health of the community is raised to some degree by this plan.

It is true that the member pays while he is well and that he must be sick to draw on the treasury. In a sense the plan provides health insurance, but a type of health insurance controlled by the professional community, without benefit to political and lay dictation.

Under the plan, the company provides for all administrative expense, and competent executives are entrusted with the administration of the plan. This is an important phase of the work. The company is just as interested in this department as it is in its manufacturing, sales, accounting and advertising departments. Supervision is close and strict, and the work of the department is executed as quickly and efficiently as in any other department. At this juncture I may draw one of the broad conclusions that were promised. Group medicine, fostered by such a plan, is free from politics.

Each officer in the association has a definite job to perform, and his success in performing his tasks in the association determines his success with the company itself. He is paid for performance, not out of association funds, not because he knew a certain influential politician, but because in the first place he was intelligent and industrious enough to get and hold a business position. His duties in the association are accessory to his regular business duties, and part of them.

Group medicine, provided by this plan, does not attempt to regulate medical practice, does not place in the hands of the layman political power to control the destiny of the medical profession. Free and independent, it leaves the profession to work out its own destiny, to develop its own ethical concepts and to enjoy the fruits of its genius without considerations of political patronage or spoils.

I am making no claim that the Spaulding plan could be adopted universally, in toto, nor am I claiming that, if it were, the problems of providing medical care would be solved. I clearly recognize its limitations and its lack of adaptation to many groups. Nor do I suggest that all business enterprises possess sufficient generosity and foresight to initiate and administer such a plan. It may be that the natural inclination of the business executive is to overlook all ethical considerations of the profession and the very personal needs and desires of the workers respecting individual medical care. Industrial medicine to such executives means simply going out and hiring professional talent just as their employment department hires stenographers. Under such conditions, treating the sick through respect for accepted standards among physicians and patients is out of the question.

In spite of these and other possible limitations, there are some noteworthy features of the Spaulding plan that do merit more than casual interest because they conform to certain proved characteristics of human nature. First is the absence of politics as a directing force in the plan. Second, the plan does not savor of a health dole. The employee pays part of the cost and feels that he is helping himself, and he is. This makes him self respecting. Free goods and services of any kind never helped build the character of a man, although they may temporarily have relieved hunger pangs. The law of compensation is still inviolate. If one gives a man everything, one takes away his self respect; and when one takes away his self respect, one takes that much character away from the man. Nothing is cherished that is free, that involves no cost, no responsibility and no obligation.

The plan provides that a man pays when he is well, for most industrial workers cannot pay when they are sick. Dues deductions are small and, by the majority of the employees, not missed. How doubly serious is great illness when the patient must lie in bed wondering where the money is coming

from to pay his expenses! How often is he tempted to lie there longer than he should, or arise sooner than he ought? How often complete discouragement accompanies a man back to his feet after a serious illness. I have marveled at the quick intelligence of the average worker when this plan is explained to him. He sees its merits immediately. He sees that no portion of what he pays is diverted to questionable administrative expenditures, elaborate office fixtures and political sinecures. Everything that he pays in belongs to him. The surplus is deposited in a bank and draws interest until needed. The employee is not forced to become a member, not even coaxed. He joins of his own free will and knows what he is joining. He can still go to his own family physician, who has been serving himself, his wife and his children satisfactorily for many years, a man in whom the employee has the greatest confidence.

Finally, the plan boils down to this residue: All along the line, self-respecting men are left to pursue independently their own ideals. They have to do nothing, accept nothing that is repugnant to their own self-felt decision. Is it not better than hordes of political officeholders driving business men, doctors and workers into a tight-fenced enclosure under the guise of offering an extraordinary medical bargain, when as a matter of fact all these groups concerned are deprived of the right to self-determined action?

This plan cannot possibly be stretched to include the chronically sick, the unemployed sick, the sick poor or the malingerers, but it can be extended with limitations to employed groups, and these groups constitute a large percentage of the population. That is, it can be extended when intelligent and generous-spirited employers would like to do it and when employees themselves are ready to receive it.

110 Oak Street.

Association News

THE ATLANTIC CITY SESSION

Invitation to Contributors for Program of Section on Surgery

Prevailing concepts of the relative significance of gross and minute normal and morbid anatomy and of normal and morbid physiology are directing, as they always have directed, modes of investigation as well as of practice. Concepts are distorted through failure to collect, to correlate and to utilize information from all sources—in short, to resort to biology for guidance in laboratory and clinic. Presentation and discussion of correlated data will advance working knowledge of fundamental processes productive of health and disease and simultaneously disclose therapeutic principles of widest applicability. The council of the Section on Surgery, General and Abdominal, urges members of the Canadian and the American Medical Association, and not only surgeons, to present papers at the meeting to be held June 10-14, 1935, that will emphasize biologic concepts of health, pathogenesis and therapy.

Processes productive of health are the formation and equable distribution of an adequate volume of good blood. Bernard showed that blood and lymph constitute the internal environment of a body and that balance in and among its constituents is compatible (imbalance incompatible) with health. Numbers of cellular and volumes of noncellular constituents fluctuate with an individual's activities, but alterations do not exceed wholesome limits because of automatic adjustments (Cannon). Similarly, myocardial and vascular activities fluctuate and are restricted within wholesome limits by pressor and depressor automatic adjusting influences. Processes productive of disease cause anomalies (unwholesome surpluses and deficits) in the constituents of the blood or impair the balance in myocardial or vascular functions. Pathogenic processes, exclusive of those occasioned by trauma, temperature, electricity and so on are primarily nonantigenic or nonparasitic or primarily antigenic or parasitic.

Nonantigenic processes arise from derangement in the divers automatic adjustments constituting the regulatory organization of a body. Consequences thereof are manifest; e. g., in polycythemia vera and in pernicious anemia; in hyper- and hypothyroxinemia and -cortinemia in hyper- and hypo-glycemia, -calcemia, and in the unwholesome sympathinemia, parasympathinemia and adreninemia, provocative of cardiac, vascular and other visceral disturbances (malignant hypertension, peptic ulcer, and the like).

Antigenic processes are caused by presence in blood or lymph of a pathogenic excess of toxic egesta of parasites or of comparable noxious substance (antigens) that cause an overproduction of leukocytes and an elaboration of antibodies. Antigens are in the internal environment from soon after establishment of a fetal circulation until death. Health is maintained by an increased production of leukocytes and an elaboration of antibodies, which in effect produces an antigen-antibody balance. Pathogenic excess of antigens occurs when there is a deficit in antibodies and in some leukocytes and a surplus in other leukocytes, which together create anomalies. Disturbances in myocardial and vascular activities are frequently secondary complications of primarily antigenic processes.

Progressing alterations in the constituents of the blood that have not exceeded wholesome limits usually occur as susceptibility to nonantigenic and antigenic diseases in developing. Anomalies are present when a disease is incipient, progress as the disease advances and regress as it recedes, to disappear with recovery. The practical value of recognition and interpretation of alterations in blood in conjunction with all other data is great. Thus can be recognized earlier the needs for prevention and treatment and the indications for efficacious measures. It is not yet possible to recognize consistently and to interpret accurately alterations approaching anomalies or to interpret correctly existing anomalies in the cellular constituents. Not all constituents of plasma are known and only in a part of those recognized can the volume be estimated accurately. Investigation and discussion of these matters are requisite to a sustained advance in clinical medicine. Authors are invited to submit summaries of their papers as soon as convenient to the secretary of the section, Dr. H. M. Clute, 605 Commonwealth Avenue, Boston, but not later than Jan. 1, 1935. Not all papers will be limited to the subjects indicated. Acceptances will be based on merit, priority and fitness as judged by the council to the end that the program shall, so far as possible be beneficial to all.

J. L. YATES, M.D., Milwaukee.
Chairman, Section on Surgery,
General and Abdominal.

MEDICAL BROADCASTS

Columbia Broadcasting System

The American Medical Association broadcasts on a western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45, central standard time. The next three broadcasts will be as follows:

October 18. Keep Fighting Diphtheria, W. W. Bauer, M.D.
October 25. What Is a Serum? W. W. Bauer, M.D.
November 1. The Common Drinking Cup. W. W. Bauer, M.D.

National Broadcasting Company

The American Medical Association broadcasts on a Blue network of the National Broadcasting Company each Tuesday afternoon from 4 to 4:15, central standard time. The next three broadcasts will be as follows:

October 16. Research in Medicine, A. C. Ivy, M.D.
October 23. Reading About Health, W. W. Bauer, M.D.
October 30. Diphtheria Must Go, W. W. Bauer, M.D.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Dr. Vinsonhaler Retires from Practice.—Dr. Francis Vinsonhaler retired from active practice, September 1, to devote full time to his duties as dean of the University of Arkansas School of Medicine. Dr. Vinsonhaler has engaged in practice in Little Rock for forty-two years, and since 1927 has been dean of the medical school. He is also professor of medical ethics.

Society News.—The Mississippi County Medical Society entertained members of the faculty of the University of Tennessee College of Medicine, Memphis, in a reunion at Blytheville, September 14; among the speakers were Drs. Benjamin F. Turner, James B. McElroy, William Battle Malone, Joseph A. Crisler, James L. Andrews, Elmer E. Francis and Eugene M. Holder, and Orren W. Hyman, Ph.D.——At a meeting of the Greene County Medical Society, September 13, Dr. Jones H. Lamb, Paragould, spoke on the treatment of pneumonia.

CALIFORNIA

Symposium on Heart Disease.—The heart committee of the San Francisco County Medical Society will hold its fifth annual symposium on heart disease, November 21-22. No fee is charged for the course, which is open to all physicians who are interested in diseases of the heart. Further information may be obtained from Dr. Jay Marion Read, 490 Post Street, San Francisco.

Society News.—Ralph W. Chaney, Ph.D., Berkeley, delivered an address before the San Francisco County Medical Society, October 9, entitled "Studying the Oldest Man in Asia," and Dr. Frank B. Young, Long Beach, on "Evidences of Diseased Conditions in Ancient Organisms."——At a meeting of the Los Angeles Surgical Society and the Hollywood Hospital staff, October 12, papers were presented by Drs. Arthur E. Guedel on "Cyclopropane Anesthesia"; Joseph W. Warren, "Radiographic Study of the Breast," and Gurn T. Stout, "Physiologic Control in the Use of Gastro-Intestinal Drainage Apparatus."

Research Study Club.—The fourth annual clinical course of the Research Study Club of Los Angeles will be presented in Los Angeles, January 21-February 1. Guest lecturers in otolaryngology will be Drs. Georges Portmann of Bordeaux, France, and John F. Barnhill, Miami Beach, Fla. Guest speakers in ophthalmology will be Drs. Webb W. Weeks, New York, and Harry S. Gradle, Chicago. The courses in dissection, given by Dr. Barnhill, will be offered in conjunction with the University of Southern California Medical School. The fee for the entire course will be $50. Further information and a detailed program may be obtained from Dr. Donald S. Dryer, 2007 Wilshire Boulevard, Los Angeles.

COLORADO

State Medical Election.—Dr. Walter W. King, Denver, was chosen president-elect of the Colorado State Medical Society at its annual meeting in Colorado Springs, and Dr. Nicholas A. Madler, Greeley, was installed as president. Vice presidents elected are Drs. Royal H. Finney, Pueblo; Charles E. Lockwood, Montrose; Fred A. Humphrey, Fort Collins, and Guy E. Calonge, La Junta.

DISTRICT OF COLUMBIA

Health at Washington.—Telegraphic reports to the U. S. Department of Commerce from eighty-six cities with a total population of 37 million, for the week ended September 29, indicate that the highest mortality rate (18.2) appears for Washington, and the rate for the group of cities as a whole was 10.1. The mortality rate for Washington for the corresponding period last year was 13 and for the group of cities, 10. The annual rate for eighty-six cities for the thirty-nine weeks of 1934 was 11.4 as compared with a rate of 10.9 for the corresponding period of the previous year. Caution should be used in the interpretation of these weekly figures, as they fluctuate widely. The fact that some cities are hospital centers for large areas outside the city limits or that they have a large Negro population may tend to increase the death rate.

GEORGIA

Tuberculosis Program.—With funds made available by the F E R A, the Georgia State Department of Health is carrying out a program to locate and place under care patients suffering with tuberculosis. Ten field nurses and two supervisors have been added to the staff. The nurses organize clinics and do follow-up work in the ten districts into which the state was divided, helping not only to secure medical care for patients but also to obtain financial assistance and to rehabilitate them. In addition, through the family physician the nurses schedule 300 patients a week for examination by the x-ray unit of the state board.

Society News.—Dr. Guy J. Dillard, Columbus, read a paper before the Randolph County Medical Society at Cuthbert, September 6, on pulmonary tuberculosis.——The Burke-Jenkins-Screven Counties Medical Society was addressed at Millen, September 6, by Drs. Robert L. Miller, Waynesboro, on coronary thrombosis, and James M. Byne Jr., Waynesboro, angina pectoris.——A paper on acute poliomyelitis was presented before the Ware County Medical Society at Waycross, September 5, by Dr. John E. Penland.——Dr. James L. Campbell, Atlanta, conducted a symposium on cancer before the Ninth District Medical Society at Gainesville, September 19, and Dr. James E. Paullin, Atlanta, discussed rheumatoid arthritis.——Dr. Hugo Robinson, Albany, was elected president of the Georgia Health Officers' Association in Atlanta, August 30; Dr. Silas C. Rutland, La Grange, vice president, and Dr. Millard E. Winchester, Brunswick, secretary, reelected.——At a meeting of the Fulton County Medical Society in Atlanta, October 4, Dr. Ebert Van Buren discussed "Pulmonary Tuberculosis Complicating Diabetes Mellitus."

IDAHO

State Medical Election.—Dr. Joseph H. Crampton, Lewiston, was chosen president-elect of the Idaho State Medical Association at its annual meeting in Lewiston, September 8, and Dr. Charles R. Scott, Twin Falls, was installed as president. Dr. Harold W. Stone, Boise, was reelected secretary-treasurer. The next annual meeting will be held in Boise.

ILLINOIS

Society News.—Dr. Harry R. Hoffman, Chicago, addressed the Randolph County Medical Society at Menard, September 27, on mental defects in criminals.——Speakers before the Adams County Medical Society in Quincy, October 8, were Drs. Dan G. Stine, Columbia, Mo., on "Value of the Leukocyte Count in Pulmonary Tuberculosis," and Marcus Pinson Neal, Columbia, Mo., "The Leukocyte Blood Pictures in Acute Infections."——At a meeting of the Will-Grundy County Medical Society at Joliet, September 26, Dr. Francis L. Lederer, Chicago, spoke on "Cancer About the Head and Neck—A Critical Analysis of the Available Therapeutic Measures."——Dr. Frank F. Maple, Chicago, addressed the Fulton County Medical Society, September 27, on "Septic Abortion."——Dr. Gilbert FitzPatrick, Chicago, discussed cancer before the Marion County Medical Society, September 27.——Dr. Aaron Arkin, Chicago, addressed the Rock Island County Medical Society in Moline, September 11, on lesions of the gastrointestinal tract.——Dr. Cyrus C. Sturgis, Ann Arbor, addressed the Peoria City Medical Society, October 2, on "Treatment of Secondary Anemias."

Chicago

Lay Educational Program.—Heart disease will be the theme of an educational program to be presented for the public, October 17, in the Medical Arts Building, under the auspices of the Chicago Medical Society. Dr. Iago Galdston, New York, will discuss "The Nature of the Increase of Heart Disease," and Dr. Newell C. Gilbert, "The Principal Causes of Heart Disease."

Dr. Moore to Lecture at Illinois.—A series of graduate lectures on "The Physiological Basis of Individuality in the Early Embryo" will be delivered at the University of Illinois College of Medicine, October 15-20, by Arthur R. Moore, Ph.D., professor of general physiology, University of Oregon, Eugene. Dr. Moore will present the following lectures on the dates indicated:

The Cytoplasm as a Biophysical System, October 15.
Special Cytoplasmic Structures, October 16.
The Individual in Motor Reactions of Simple Forms, October 17.
Phylogenetic Beginnings of the Central Nervous System, October 18.
Modifiability of Reactions, October 18.

Society News.—At a meeting of the Chicago Gynecological Society, October 19, the speakers will be Drs. Fred L. Adair and M. Edward Davis on "Chronic Atrophic Dermatitis of the

Vulva," and Carl Henry Davis, Milwaukee, "Use of the Colposcope in the Diagnosis of Cervical Lesions." Dr. Fred J. Taussig, St. Louis, will be the society's guest at dinner and the meeting and will discuss the papers. A clinical meeting will be conducted at Michael Reese Hospital in the morning. ——Dr. Arthur Steindler, Iowa City, addressed the Chicago Orthopedic Club, October 12, on "Tuberculosis of the Wrist." Other speakers included Drs. Frank G. Murphy on "Traumatic Rupture of Quadriceps Tendon Above the Patella with Surgical Repair" (case presentation), and Edson B. Fowler, Evanston, Ill., "Internal Fixation of Fractures with Horn: Cortico-Medullary Technic."

MAINE

Society News.—Speakers before the Hancock County Medical Society at Bar Harbor, August 15, were Drs. John J. Moorhead, New York, on "Traumatic Surgery," and David Riesman, Philadelphia, "Subacute and Chronic Bronchopneumonia and Its Relation to Disease of the Upper Air Passages." ——A symposium on thoracic disease was presented before the Washington County Medical Society in Calais, August 24, by Drs. Bertram L. Bryant, John L. Johnson and Theodore S. Moise, Bangor.——At a recent meeting of the Androscoggin County Medical Society Dr. William H. Watters, Boston, discussed asthma with special reference to the nasal factors.

MICHIGAN

New County Medical Society.—The Van Buren County Medical Society was created at a dinner meeting, recently, when physicians of the county were guests of the county health department and the W. K. Kellogg Foundation. Dr. Arthur A. McNabb, Lawrence, was chosen president, and Dr. John F. Itzen, South Haven, secretary.

Course for Rural Practitioners.—A course in differential diagnosis of communicable and infectious diseases was recently given at the Herman Kiefer Hospital, Detroit, for the physicians of Allegan, Barry and Eaton counties. The course, sponsored by the W. K. Kellogg Foundation, is the second of its kind. For the first, the foundation sent physicians from these counties to medical centers in Chicago and Rochester, Minn. Dr. John E. Gordon, epidemiologist, Detroit Department of Health, conducted the course with the assistance of Drs. Ray S. Dixon and Joseph A. Kasper, and Henry F. Vaughan, Dr.P.H., health commissioner of Detroit.

Society News.—Dr. Rosco G. Leland, Chicago, will address the Wayne County Medical Society, Detroit, October 15, on "Sickness Insurance Is Not the Remedy." A symposium on typhoid was conducted before the society, October 1, by Henry F. Vaughan, Dr.P.H., Dr. Joseph A. Kasper and Dr. Hugo A. Freund. —— Dr. William H. Gordon, Detroit, recently addressed the Oakland County Medical Society on "Malignant Neutropenia, Its Etiology and Treatment."——A symposium on infantile paralysis was presented before the Livingston County Medical Society, September 7, by Drs. Clarence D. Barrett, Lansing, Raymond W. Waggoner and Clarence H. Snyder, Ann Arbor.

MISSOURI

Personal.—Dr. Frank M. Grogan, superintendent of the state hospital at St. Joseph, has been appointed to a similar position with the City Sanitarium, St. Louis, succeeding Dr. George A. Johns. The latter became superintendent of the St. Louis Training School, following the resignation of Dr. James Lewald, who plans to go to Laurel, Md.——Dr. Clifford L. Van Pelt, Paola, has been appointed health officer of Miami County, succeeding his father, the late Dr. Levi A. Van Pelt.

Society News. — Speakers before the St. Louis County Medical Society in Clayton, September 26, were Drs. James F. McFadden, on "Functional Nervous Diseases as Met in Daily Practice," and Joseph Hoy Sanford, "Urology and Its Relationship to the General Practitioner."——Speakers before the St. Louis Medical Society, September 25, were Drs. Quitman U. Newell, who presented "A Statistical Study of a Series of Corpus Uteri Carcinoma"; Samuel D. Katz, "Acute Intra-Abdominal Vascular Conditions," and Thomas K. Brown, "Puerperal Infection."

Candidates for Congress.—Dr. James A. Logan, Warsaw, secretary of the Benton County Medical Society, was selected as Republican nominee for Congress from the second congressional district, and Dr. William H. Breuer, St. James, was selected as nominee from the eighth district at a meeting of the district committee in Jefferson City, August 28. Dr. Logan is mayor of Warsaw and has twice been a member of the state legislature from Benton County. Dr. Breuer is a past president of the Missouri State Medical Association, a councilor of the twenty-seventh district and a vice chairman of the council.

NEVADA

State Medical Meeting and Election.—The thirty-first annual session of the Nevada State Medical Association was held in Reno, September 21-22, with headquarters at the Hotel Golden. The program was as follows:

Dr. Miley B. Wesson, San Francisco, Urinary Calculi, Cause and Treatment.

Dr. Colin C. McRae, San Francisco, Treatment of Fractures of the Forearm.

Dr. George L. Stivers, Fall River, Mass., Types of Pleuropulmonary Adhesions.

Dr. William P. Lucas, San Francisco, Problems of Growth and Development During Childhood.

Dr. Richard O. Schofield, Boulder City, Industrial Work at Boulder Dam.

Dr. Lewis Michelson, San Francisco, Stricture of the Uterus in the Female: Its Diagnosis and Treatment.

Dr. William W. Washburn, San Francisco, Malignancies of the Gastro-Intestinal Tract.

Dr. George N. Hosford, San Francisco, Present Status of the Treatment of Strabismus.

Dr. Richard O. Schofield, Boulder City, was chosen president-elect and Dr. Edward E. Hamer, Carson City, was installed as president. Dr. Horace J. Brown, Reno, was reelected secretary and Elko was chosen as the place for the 1935 session.

NEW YORK

Society News.—Dr. Walter A. Reynolds, Albany, addressed the Medical Society of the County of Albany, September 26, on "Geriatrics."——Dr. Gerard H. Cox, Glen Cove, addressed the Medical Society of the County of Nassau, September 22, on "Correction of Facial Deformities by Plastic Surgery."—— Dr. Lewellys F. Barker, Baltimore, addressed the Medical Society of the County of Monroe, Rochester, October 4, on "Contemporary Views of Angina Pectoris and Coronary Thrombosis." The society in cooperation with the Rochester Hospital Council has recently adopted regulations governing admissions to outpatient departments of hospitals. —— Dr. Thomas Parran Jr., Albany, state health officer, was the guest speaker at the annual meeting of the Tuberculosis and Health Association of Rochester and Monroe County, September 26, on "Accomplishments and Possibilities in Conserving Health."

New York City

First Harvey Lecture.—Dr. William B. Castle, associate professor of medicine, Harvard University Medical School, Boston, will give the first lecture this season before the Harvey Society, October 18, at the New York Academy of Medicine, on "The Etiology of Pernicious and Related Macrocytic Anemias."

Schneller Returned to Prison.—Max R. Schneller, also known as Carl R. Elfes, who was sentenced last April to serve a year in New York County Penitentiary for illegal practice of medicine, was again in court, October 2, charged with escaping from prison. He was found guilty, sentence was suspended and he was returned to prison to serve out his original sentence. Schneller escaped from the prison on Riker's Island, July 23, and was found the next night in the Bronx. He spent the intervening time in the psychopathic ward of Bellevue Hospital, where physicians said he was suffering from hysteria, and in the Bronx County jail.

Personal.—Dr. William Salant, Cold Spring Station, has been elected guest professor of pharmacology at the New York Homeopathic Medical College and Flower Hospital.——Dr. G. Canby Robinson, who recently received a year's leave of absence as director of the New York Hospital-Cornell University Medical Center, has been appointed visiting professor of medicine at Peiping Union Medical College, Peiping, China. He will sail by way of Europe November 1.——Dr. Marie P. Levinson Warner presented a paper at the recent congress of the International Medical Women's Association in Stockholm on "The Status of Birth Control in the United States."—— Dr. Samuel Silbert addressed the French Congress of Surgery, October 8-12, on "Surgery of the Adrenal Gland in Relation to the Treatment of Thrombo-Angiitis Obliterans."

NORTH DAKOTA

New Medical Board. — New members appointed to the North Dakota State Medical Board include Drs. John E. Hetherington, Grand Forks; Jesse W. Bowen, Dickinson, and William C. Fawcett, Starkweather.

OHIO

Society News. — Dr. Herrman L. Blumgart, Boston, addressed the Academy of Medicine of Cincinnati, October 8, on "Total Removal of the Thyroid."——Common infections of the eye, the skin and the genito-urinary tract were discussed by Drs. Arthur M. Culler, Elmer C. Loomis and Raymond E. Tyvand, respectively, at the first fall meeting of the Montgomery County Medical Society, Dayton, September 28.

Institute on Cardiovascular Disease.—The Heart Council of Greater Cincinnati and the Academy of Medicine of Cincinnati announce the second annual institute on cardiovascular disease under their joint auspices, to be held October 29. The opening session will be held at the Cincinnati General Hospital, where the medical, pediatric and pathology departments will present material dealing with different phases of circulatory disorder. Visiting guests and local physicians will conduct clinics and present cases at several other hospitals. At 4 o'clock in the afternoon a meeting of interested physicians will be called to consider organization of a regional heart association. In the evening the academy will present a symposium on cardiac pain, with Drs. Louis Hamman, Baltimore, and Walter W. Hamburger, Chicago, as speakers.

OREGON

State Medical Election.—Dr. George A. Massey, Klamath Falls, was named president-elect of the Oregon State Medical Society at the annual session in Corvallis, September 30. Dr. Albert M. Webster, Portland, was installed as president and other officers elected were Drs. Karl H. Martzloff, Portland, William J. Weese, Ontario, and R. Wayne Espersen, Bend, all vice presidents, and Blair Holcomb, Portland, secretary. The 1935 convention will be held in Gearhart.

PENNSYLVANIA

Society News. — Dr. Charles Geschickter, Baltimore, addressed the Dauphin County Medical Society, Harrisburg, October 9, on "Breast Tumors—Their Diagnosis, Treatment and Etiology in Relation to Ovarian Hormones."——Dr. Bernard P. Widmann, Philadelphia, addressed the Harrisburg Academy of Medicine, September 18, on "Evaluation of Treatment Procedure for Cancer with Special Reference to X-Ray and Radium."

Philadelphia

Society News. — Drs. Joseph V. Klauder and Lewis K. Ferguson addressed the Philadelphia Academy of Surgery, October 1, on "Erysipeloid: Bacillus of Swine Erysipelas Infection—a Disease of Industry" and "Ambulatory Ligation in the Treatment of Varicose Veins," respectively.——A symposium on "Newer Concepts of Renal Physiology and Bright's Disease" was presented before the College of Physicians of Philadelphia, October 3, by Drs. Alfred N. Richards, Baldwin H. E. W. Lucke, Eugene M. Landis and Harold W. Jones. ——Dr. Charles P. Noble, Radnor, among others, addressed the Obstetrical Society of Philadelphia, October 4, on "Dyspareunia: A Psychoneurosis."——Dr. Samuel R. Skillern Jr. was elected president of the Philadelphia Laryngological Society at the annual meeting in June, and Dr. Benjamin H. Shuster, secretary.

Saturday Morning Clinics Revived. — The Philadelphia General Hospital has inaugurated a series of clinics to be given by members of the staff on Saturday mornings from 11 to 1 o'clock. The clinics, which are a revival of a former custom, will be arranged and conducted in the interests of the general practitioner and will be open to the medical profession and medical students. They will cover a broad variety of medical and surgical subjects, with demonstration of cases, but not with operative clinics. At the first meeting, October 6, Drs. David Riesman and Thomas M. McMillan discussed "Recognition of the Failing Heart" and Dr. Edward A. Strecker, "The Neuroses as Encountered by the General Practitioner." The remaining programs for October are as follows:

October 13: Dr. James W. McConnell, Disturbances of Locomotion and Their Meanings; Dr. Arthur C. Morgan, Physical Signs of Pulmonary Tuberculosis.

October 20: Dr. Hubley R. Owen, Fractures of the Long Bones; Dr. Daniel J. McCarthy, The Cerebral Apoplexies.

October 27: Dr. Robert G. Torrey, Rheumatic Heart Disease; Dr. Earl D. Bond, Onset of Encephalitis in General Practice.

Dr. Russell S. Boles is chairman of the committee that has arranged the Saturday morning clinics.

Pittsburgh

Personal.—Philip B. Hadley, Ph.D., formerly associate professor of bacteriology, University of Michigan Medical School, Ann Arbor, and Arthur P. Locke, Ph.D., former chief of biochemical research at St. Luke's Hospital, Chicago, have been appointed to the research staff of the Institute of Pathology of Western Pennsylvania Hospital. The institute is the medical research affiliate of the Mellon Institute for Industrial Research.

SOUTH CAROLINA

Personal. — Dr. William A. Carrigan, Conway, has been appointed health officer of Beaufort County.——Dr. Leonidas M. Stokes, Walterboro, has been appointed a member of the South Carolina Board of Medical Examiners to succeed Dr. Joseph T. Taylor, Adams Run, resigned.

Founders Day Celebration. — The Medical College of South Carolina, Charleston, will hold its first celebration of Founders Day, November 8. A program of clinics has been arranged for the day and in the evening a banquet will be held at which Dr. Stewart R. Roberts, Atlanta, will deliver an address on "Neurocirculatory Asthenia." The institution is 110 years old.

Society News.—Bruce Mayne of the U. S. Public Health Service addressed the Columbia Medical Society, August 13, on "Modern Views of the Economic Control of Malaria."—— At a meeting of the Ridge Medical Society in Batesburg, August 20, Drs. Eddie H. Thomason and Leo F. Hall, State Park, presented papers on "Pneumothorax in Treatment of Tuberculosis" and "Childhood Type of Tuberculosis," respectively. Dr. William W. King, Batesburg, discussed "Dysentery, Bacillary and Amebic."

TEXAS

Personal. — Drs. James W. Bass, city health officer of Dallas, and Horace E. Duncan, health officer of Dallas County, were guests of honor at a dinner given by the Dallas Public Health Institute, September 11.

Society News.—Drs. Curtice Rosser and Samuel A. Shelburne will address the Dallas County Medical Society, October 25, on "Cancer of the Anal Canal" and "Etiology of Heart Disease in Texas," respectively.——Speakers at a meeting of the Nine Counties Medical Society (Medina-Uvalde-Maverick-Val Verde-Terrell-Edwards-Real-Kinney-Zavala counties) in Castroville, August 10, included Drs. Isaac Dudley Jackson, San Antonio, on "Treatment of Various Types of Malignancies"; Thomas M. Johnson, Del Rio, "The Doctor's View of Contraception," and William G. Brymer, Castroville, "Hydrochloric Acid Intravenously as a Therapeutic Measure."

WEST VIRGINIA

Society News.—Dr. William W. G. Maclachlan, Pittsburgh, addressed the Ohio County Medical Society, Wheeling, October 5, on "Experimental and Clinical Observations on Pneumococcic Pneumonia."——Dr. Paul Titus, Pittsburgh, addressed the Monongalia County Medical Society, Morgantown, September 4, on "Causes and Treatment of Sterility." —— Drs. Virgil E. Holcombe and Walter W. Point, Charleston, were speakers at a meeting of the Kanawha Medical Society, September 11, on "Lesions of the Esophagus" and "Management of the Average Normal Obstetrical Delivery," respectively.—— Dr. Royd R. Sayers, Washington, D. C., addressed the Fayette County Medical Society, Oak Hill, September 18, on industrial hygiene and sanitation. Members of the Kanawha and Raleigh County medical societies were guests.——Interns from three Huntington hospitals presented case reports at a meeting of the Cabell County Medical Society, September 13: Drs. Clarence H. Plymale, on "Acute Glossitis"; Charles F. Davis Jr., "Coronary Occlusion Without Pain," and Wilber V. Bradshaw, "Stab Wound of the Liver."

Wassermann Tests for Barbers and Beauticians. — A ruling which denied a license to any barber or beautician found to have a positive Wassermann test was recently modified by the State Committee of Barbers and Beauticians. The final decision was that any applicant found to have a positive reaction to the test may have forty-five days in which to take treatment. At the expiration of that time he or she may present to the state health commissioner a certificate from a licensed physician who is in good standing in his county or state medical society, stating that the applicant has been under active treatment during the forty-five day period. The applicant must show that he is free from clinical signs of syphilis. The health commissioner may then issue a certificate of registration with the proviso that the applicant must file with the health commissioner every six months a certificate from a physician stating that he or she has been under the care or supervision of that physician during the period. Failure of

the applicant to carry out this provision shall result in the revoking of the certificate granted. When so revoked, it may be restored at the discretion of the committee.

GENERAL

Special Board Examinations.—The American Board of Otolaryngology will hold an examination in San Antonio, Texas, November 13, during the meeting of the Southern Medical Association. Sixty-two candidates were examined in Chicago, September 8, of whom thirteen failed or were conditioned. During 1935 the board will hold examinations in New York City during the annual session of the American Medical Association in June and in Cincinnati in the fall during the meeting of the American Academy of Ophthalmology and Otolaryngology.

Society News.—The Inter-State Postgraduate Medical Association of North America will hold its annual assembly in Philadelphia, November 5-9.——Dr. Louis E. Phaneuf, Boston, was chosen president-elect of the American Association of Obstetricians, Gynecologists and Abdominal Surgeons at the annual meeting in White Sulphur Springs, W. Va., in September, and Dr. Marvin Pierce Rucker, Richmond, Va., became president. Dr. William H. Weir, Cleveland, was elected vice president and Dr. Arthur M. Mendenhall, Indianapolis, reelected secretary. Next year's meeting will be held in Skytop, Pa., September 16-18.

Ceremony in Jerusalem to be Broadcast.—A description of a ceremony in Jerusalem at which the cornerstone will be laid for the first medical center and graduate medical school in Palestine will be broadcast Tuesday, October 16, as a feature of the annual convention of Hadassah, the Women's Zionist Organization of America, in Washington, D. C. The new institution, which will be affiliated with the Hebrew University, will be built by Hadassah and the American Jewish Physicians Committee. On its staff will be a number of German scientists who have gone to Palestine to continue teaching and research.

Auxiliary Board Meeting.—Twenty members of the board of directors of the Woman's Auxiliary to the American Medical Association attended a meeting in Chicago, September 22. The revisions committee submitted a new constitution and by-laws which were approved unanimously. Members of this committee are Mrs. John A. McCaw, Denver, chairman, Mrs. T. Mitchell Burns, Denver, Mrs. J. Newton Hunsberger, Norristown, Pa., Mrs. William Wayne Babcock, Philadelphia, and Mrs. Arthur B. McGlothlan, St. Joseph, Mo. The Woman's Auxiliary to the Chicago Medical Society entertained the directors at luncheon.

Directory of Health Officers.—The U. S. Public Health Service has published a directory of the full time county health officers in the United States, compiled from data furnished by state health officers as of Jan. 1, 1934. The list contains more than 500 names of health officers of single counties and in addition shows a number of those in charge of units of two or three counties. Some states are organized on the district basis or with the town as a unit and in many cases the health officer's position is on a part time basis. Similar directories have been published annually since 1922, except for 1932, when funds were not available. The list appears in *Public Health Reports* for September 28, page 1134.

Association of American Medical Colleges.—The forty-fifth annual meeting of the Association of American Medical Colleges will be held in Nashville, Tenn., October 29-31, with headquarters at the Andrew Jackson Hotel. A symposium on graduate teaching will be presented by Drs. William McKim Marriott, St. Louis; Thomas Ordway, Albany, N. Y.; Willard C. Rappleye, New York; Frank R. Ober, Boston; John B. Youmans, Nashville, and Leroy E. Parkins, Boston. Among other speakers will be:

Dr. Ray Lyman Wilbur, Stanford University, Calif., Inspection of Medical Schools and Survey of Medical Education.
Dr. Charles C. Macklin, London, Ont., Relationship of Histology to Pathology.
Dr. John J. Mullowney, Nashville, Effect of the Depression on Medical Students of the Negro Group and on Internships Available.

Importations of Radium.—During the past ten years the United States has imported less than one third of a pound of radium, for which more than $6,000,000 has been paid. Radium is one of the few commodities that has not been affected by economic conditions, according to the U. S. Department of Commerce. In fact, the heaviest importations have been made since 1929. Imports were fairly steady during the past ten years at from 125 to 170 grains valued at from $400,000 to $575,000 per annum until 1930. In that year the amount increased to 260 grains valued at $925,000, the largest amount ever imported in one year. In 1933, 179 grains valued at $576,000 was imported at an average invoice price of $3,217 per grain and during the first seven months of the current year $400,000 worth was purchased abroad, it was stated. Most radium imports come from Belgium, which controls the world's principal supply in the Belgian Congo, but smaller consignments are received from Canada, where radium ore was discovered in 1930, and elsewhere.

Government Services

Bayer Company Ordered to Cease Unfair Competitive Practices

The Federal Trade Commission has issued an order to the Bayer Company, Inc., New York, to cease and desist from using unfair competitive practices in the sale of its acetylsalicylic acid tablets. The company is directed to cease using language in its printed advertising or radio broadcasting stating or giving the impression that "aspirin" is a trademark of the Bayer company. This order does not apply to advertising or packages to be sold in foreign countries in which the word "aspirin" has been held to be the Bayer Company's valid trademark. A list of seventeen representations are given in the commission's order, which the company is not to use unless properly qualified, limited or explained. Among them are such expressions as "It cannot harm the heart," "Bayer aspirin is always safe," "Take Bayer aspirin for any ache or pain, and take enough to end it. There is no harm in its free use," "Genuine Bayer Aspirin tablets promptly relieve headaches, neuritis, colds, toothache, neuralgia, sore throat, lumbago, rheumatism." The order is not to be construed, however, as preventing the company from making proper therapeutic claims or recommendations based on reputable medical opinion or pharmaceutical literature, it was stated. The third prohibition in the order is one providing that the company shall not in any way represent that acetylsalicylic acid tablets manufactured by other firms are counterfeit or spurious. The company waived a hearing and did not contest the proceeding of the commission.

Medical Research Correlating Bureau—A Warning

Recently a number of complaints have been received by the Army Medical Library directly or indirectly concerning the "Medical Research Correlating Bureau of Washington, D. C." A copy of a receipt for $10 from a Mr. J. J. Sharkey, representative of this "Bureau," has been sent to the Library. He states in effect that for $30 the "Bureau" will furnish "routine evaluated reports" secured by and through the "facilities of the Surgeon General's Library," currently by mail and later the same in printed form with a suitable binder. The complaints are that money has been accepted by this representative and nothing sent in return and letters not answered.

From time to time in the past complaints of this nature have been made to the Army Medical Library regarding various unofficial "services," which are supposed to furnish certain abstracts, answer enquiries and otherwise serve their subscribers. It should be obvious that such "bureaus" and individuals in no way represent the Army Medical Library. The Library is a national institution and its collections are available to those who come to its reading rooms and through the interlibrary loan system to physicians, dentists, veterinarians and others throughout the country. Persons who abstract the medical literature for a fee are as much entitled to use the library as others. The Library, however, objects to the implication that any "bureau" or other unofficial organization or individual has access to material in the Library that is not open to all readers. Usually such organizations and individuals are careful not to make the direct statement that such is the case, but they at times imply as much.

The Library, except for the letters of complaint above mentioned, has never heard of the "Medical Correlating Bureau" nor of the individual acting as its representative.

CORRECTION

The Aglomerular Kidney.—In an editorial with this title, THE JOURNAL, Sept. 22, 1934, page 922, the statement "within sixty days after partial *urethral* obstruction *plus* unilateral exposure to x-rays" should be changed to read "within sixty days after partial *ureteral* obstruction *or* unilateral exposure to x-rays."

Foreign Letters

LONDON

(From Our Regular Correspondent)

Sept. 14, 1934.

The British Association for the Advancement of Science

At the annual meeting of the British Association for the Advancement of Science, held at Aberdeen, a number of subjects of interest especially to physicians were discussed.

THE MECHANISM OF COLOR SENSATION: COLOR BLINDNESS

In the Section of Physiology, the president, Dr. H. E. Roaf, professor of physiology in the University of Liverpool, devoted his address to a new view of color sensation. His tentative conclusion was that to explain the phenomena of color vision three groups of nerve fibers passing to the brain must be assumed. Helmholtz had suggested that the differentiation is due to three photo-active substances acted on by the long, medium and short wavelengths of the spectrum, respectively. The ranges of radiation which affected these three substances overlapped so that, for example, some rays affected all three. But there was no evidence of the presence of three photo-active substances, only one (rhodopsin or visual purple) having been found. Moreover, in order to explain color blindness it had to be assumed that one photo-active substance was not absent but that the range of activity was shifted, so that the one substance was activated by the range which was formerly active on two substances. It did not seem likely that such a transformation would occur. The president thought that "normal vision might be due to a receptor which gave rise to a red sensation, one which gave rise to a blue sensation, and one which gave rise to a not-blue, not-red sensation, which of course corresponded to green. The wavelengths that stimulated the several receptors were not known. The real difference between the various hypotheses was the extent and region of the spectrum which stimulated the end organs."

A NEW TEST FOR THE WATERING OF MILK

At a joint meeting of the chemistry and agriculture sections, Dr. J. F. Tocher criticized the freezing point test now used to detect the watering of milk, for which the claim is made that it can detect 5 per cent of watering. Dr. Tocher thought that this test was too unreliable to be the basis of convictions for adulteration. There was no standard for the freezing point of milk, and analytic authorities were not yet agreed as to the nearest approach to the freezing point of water that occurred in genuine samples of milk. Dr. Tocher brought forward his "constituents test," which is based on his discovery that, when solids-not-fat percentages are high, the proportions of the individual constituents differ from the relative percentages in the cases in which the solids-not-fat percentages are low. Therefore rich milk when watered will show on an average different proportions of the constituents from those of poor milk. The problem is one of probability. On the basis of analyses of 474 samples of milk from individual cows, he solved an equation that gave the relations of the four chief constituents to the total solids other than butter fat. The predicted solids were found to approximate closely to the actual solids in samples from individual cows. But when a sample was watered the predicted values differed significantly from the actual values. Reverting to the freezing point test, Dr. Tocher was grieved that judges were misled by witnesses who failed to recognize their responsibilities and the gravity of statements that the accused, if innocent, were not in a position to rebut.

DIET AND DENTAL DISEASE

Mrs. May Mellanby gave some interesting applications of her doctrine of the importance of diet in the prevention of dental disease. She said that in spite of the excellent work of dentists there was more dental decay than ever in the world. Sad to relate, educated people suffered more than natives living their primitive life. But when such natives came into contact with civilization their teeth began to suffer. The Eskimos had beautiful teeth—only 3 per cent were said to suffer. The primitive Negro of the tropics had white pearly teeth free from decay, but his descendants in the United States were almost as prone to dental disease as Europeans. Mrs. Mellanby said that wrong diet (mainly deficiency of vitamin D) and lack of sunshine especially in early life were the primary causes of caries and pyorrhea. Cereals, including oatmeal and maize, were harmful and anticalcifying foods. The Eskimo had good teeth because in his natural condition he hardly ate cereals and his diet was rich in animal fat, with which vitamin D was associated. It was true that the diet of natives in tropical countries included much cereal, but most of, if not all, their skin was exposed to the sun's rays and the necessary vitamin was synthesized in their bodies. Dental decay was prevalent in countries such as England because cereals were the cheapest food, there was little sunshine, and what there was was not allowed to play on either the body or the food.

Crossing Places for Pedestrians

The latest measure for the prevention of road casualties—the provision of marked crossing places for pedestrians—has been highly successful. It is not an absolute safeguard, for persons have already been killed at these safety lanes. But an accident at them greatly increases the responsibility of the motorist. Pedestrians can signal that they are about to cross, and it is the duty of the motorist to slow down at every crossing and exercise every care. In case of an accident it is no excuse for him to say that he did not see the pedestrian step off the sidewalk. If pedestrians cross at these appointed places they have the law behind them. It is proposed to warn them that if they cross at other places they do so at their own peril. These crossings are not equipped with automatic signals nor are they under the control of traffic officers. Crossings of the latter type have for some time been in existence at important road junctions.

The British Medical Association in Conflict with a Scheme of Contract Practice

A long-standing dispute exists in South Wales between the Caermarthenshire physicians and a local workmen's medical committee. It affects 18,000 workers and their dependents, and it originated in an attempt to reduce the subscription rates that had existed for some time. These were 40 cents per month for men with dependents and 20 cents for men without them. The workmen's committee intimated that it was dissatisfied with the services rendered and proposed that the rates be reduced to 32 and 12 cents respectively. At the same time, the rates of subscription by the workers would be maintained at the same level and the saving be used for supplying an ancillary specialist service, for which the staff would be recruited by the committee. Thus conflict with the local medical profession arose as to the terms of remuneration and the appropriate method for providing an ancillary specialist service. The existing contract was terminated. The physicians brought forward a scheme of their own for a public medical service, both general practitioner and specialist, at rates graded to suit the varying income of different classes. This scheme is on lines approved by the British Medical Association. The workmen's committee made the countermove of introducing into the area three physicians to do the work on a

salaried basis. But they are meeting with difficulties. One of the physicians, a member of the British Medical Association, soon resigned. Two specialists, previously under contract with the committee, also resigned. The British Medical Association holds that the counterstroke of the committee militates against the interests of the patients and professional tradition. It is not a far step from this system to the employment of salaried whole time physicians by the state for domiciliary treatment, which the association has always opposed. Also, a lay body is not fully equipped for the selection of a staff for the medical service. The workers are reminded of what happens when they quarrel with their employer and he seeks to introduce other workers to replace them. The association is not a trade union but it will support the professional well being of its members. The dispute was the subject of a report by the council to the representative body at the recent annual meeting of the association, when Sir Ewen MacLean said that if the association failed in this area it would be faced with a situation that would imperil the medical services in the industrial areas of South Wales.

Women in Medicine in Great Britain

The present position of women in medicine in Great Britain is shown in the educational number of the *British Medical Journal*. Coeducation is the general rule outside London, where the only schools open to women are the London School of Medicine for Women (which is confined to them) and, to a limited extent, University College Hospital and King's College Hospital. The total number of women medical and dental students in the medical schools of Great Britain in the session 1931-1932 was 1,272, while the corresponding number for males was 9,107. The London School of Medicine for Women (Royal Free Hospital) was established for the training of women in medicine in the days before there were any coeducational facilities for them, and it is still the principal school. Arrangements are made for the students of the school to obtain clinical instruction in special subjects at the National Hospital for Nervous Diseases, the Royal London Ophthalmic Hospital, the Great Ormond Street Hospital for Children, the Elizabeth Garrett Anderson Hospital, the South London Hospital for Women, the Cancer Hospital and the Central London Ophthalmic Hospital. The London School of Medicine is of great importance to medical women. All its postgraduate appointments are open to women as well as to men. There is a gynecologic unit under a woman professor, entirely staffed by medical women. There are now more than 5,000 women in the Medical Register. There is an increasing demand for the services of women physicians, and the proportion of them who make good is as high as that of their male colleagues, if not somewhat higher. In the municipal hospitals a number of new resident appointments to be held by medical women have been created, for which the supply is not equal to the demand. The number of women doing specialist and consulting work is rapidly increasing. In the large cities there are hospitals staffed entirely by women doing excellent work.

Records of Centenarians

As skepticism has been expressed with regard to the existence of centenarians, the following, taken from the *Times* of September 4, should be of interest: Mrs. Palmer of Ulundi Road, Blackheath, London, will celebrate her 107th birthday today, when she hopes to entertain some members of her family. She will have a birthday cake bearing 107 candles, presented by an old friend. Yesterday she gave a party to a number of intimate friends. Her mental faculties are still good and she takes a keen interest in her home. She looks with pride on a portrait of herself painted on the occasion of her 100th birthday, when she received a telegram of congratulation from the king.

Mrs. Elizabeth Miller of Murthly, Pertshire, celebrates her 104th birthday today. When she was born in 1830 a holly tree was planted in front of her home beside the river Tay. She still lives there and the holly tree flourishes.

Mrs. Caroline Merriott, an inmate of the Mayday Hospital, Thornton Heath (near London), will be 109 at the end of this month. It is noteworthy that all these centenarians are women, which is in keeping with the general rule of the greater longevity of women than of men.

PARIS

(From Our Regular Correspondent)

Aug. 29, 1934.

Congress of French-Speaking Pediatricians

The seventh congress of French-speaking pediatricians was held in Paris, under the chairmanship of Professor Ombrédanne. Scientists from Belgium, Ireland, Italy, Switzerland, Uruguay and other countries participated. In his address the president, who is a surgeon, called attention to the important rôle of operative procedures in infantile therapeutics; for example, in pyloric stenosis and disorders of the parathyroids. The pediatrics of the future will be worked out through close collaboration of physicians and surgeons. Three well defined topics constituted the agenda:

INFLUENCE OF CLIMATE ON THE DISEASES OF CHILDREN

Prof. Georges Mouriquand of Lyons considered in his paper the medical repercussions associated with changes in the weather. He discussed the symptoms of "heat stroke" and "cold stroke," or chill, both of which are grave manifestations in children, because their heat-regulatory functions are insufficiently developed. He called attention to the effects of the overheated air of nurseries, cubicles and incubators, and of too much clothing. He reviewed the symptoms associated with barometric changes, changes in the intensity of the solar rays, changes in the electrical tension of the atmosphere, and complex changes in the weather (symptoms due to south winds, east winds, west winds and stormy weather). Some persons show a peculiar sensitiveness and even have "premonitions" in advance of other persons. These reactions include the simple irritative type, accompanied by nervousness and insomnia; the thermic type, and the grave type with dehydration. In "weather-sensitive" children the reactions are varied, the following manifestations having been observed: irritability, inattention, urticaria, pruritus, asthenia, insomnia, and respiratory disturbances. Then there are the symptoms associated with a change of climate, occurring in children transported from their customary milieu. Mouriquand divides children into two classes, the "meteorosensitive" and the "meteororesistant," the former presenting a morbid state unsuitable to resistance (disturbances of the vagosympathetic system, hepatic involvement, endocrine insufficiency, tendency to colloidoclastic reactions and to humoral flocculation). Meteoropathology is a recent science, but many facts that cannot be explained by ordinary pathology may some day be understood through the applications of meteoropathology. P. F. Armand Delille of Paris developed the same theme, discussing morbid constitutions as a result of which some children are sensitive to climatic changes: lymphatism, state of the rhinopharynx, vagosympathetic disequilibrium, sequels of previous infections, avitaminosis. He considered the effects of seaside and mountain climate. P. Woringer of Strasbourg read a paper on the influence of the seasons on the evolution of disease. He described the method for correctly establishing seasonal curves in their relations to medical statistics. These curves present nearly always an annual maximum and minimum, separated by an interval of six months. Measles occurs mainly between March and July, scarlet fever between January and

March, diphtheria between November and January, and epidemic meningitis and epidemic (lethargic) encephalitis between December and July, with the peak in March. Whooping cough and influenza may appear at any season. Rickets is most common during the months having the least sunshine. Woringer gave as an explanation for the seasonal nature of various epidemics the habitual alimentary regimen, and the phases of exaltation and depression in the functioning of the organs themselves. He endorses the hypothesis of Moro with regard to the hormonic crisis of springtime, the changes in the sun's rays, the temperature, the hygrometric condition of the air, and finally the common direction of the regional winds. The general discussion was participated in by Jaubert of Hyères, Gauthier of Geneva, Lereboullet of Paris, de Chabanolle of Chamonix, Bauza of Montevideo, Pechère of Brussels, Cathala and Marfan. Many further communications were presented.

RÔLE OF THE FILTRABLE TUBERCULOUS VIRUS IN PEDIATRICS

In their paper, Paisseau and Valtis defined a filtrable tuberculous virus and described the methods that enable one to observe its effects on experimental animals. They concluded that the technic of the diagnosis of tuberculosis by inoculation in the guinea-pig should be revised, for one is not justified in concluding that tuberculosis is not present because such inoculation is not followed by the appearance of the ordinary signs of the disease. Several unofficial communications followed this presentation.

OMPHALOMESENTERIC VESTIGES IN THE CHILD

The third topic, "Pathology of the Omphalomesenteric Vestiges in the Child," was discussed by Fèvre and Semelaigne of Paris. The accidents due to Meckel's diverticulum are not so rare as is supposed. Sixteen cases were observed in six years in the department of Professor Ombrédanne, and an operation was performed in twelve of the cases by one of the speakers. One finds Meckel's diverticulum six times more often in boys than in girls; it sometimes opens into the umbilical vesicle and sometimes into the intestine and sometimes is closed at both ends and forms a cyst. The paper gave a survey of the possible accidents, including ulcer of Meckel's diverticulum, hernia, cysts, intestinal perforations and peritonitis. The treatment is always operative. During the discussion, Mr. Perrot of Geneva stated that he had observed within two years five cases of lesions of Meckel's diverticulum.

BERLIN

(From Our Regular Correspondent)

Aug. 20, 1934.

Meeting of German Psychiatrists

At the recent annual session of the Deutscher Verein für Psychiatrie, in Münster, there was an extensive discussion on the practical application of the law for the prevention of posterity with hereditary defects. In his paper on "Clinical Psychiatry and Eugenics," the Munich psychiatrist Bumke pointed out that, among the methods for the prevention of posterity with hereditary defects, birth control must be absolutely rejected, since such methods, in view of the existing reduced birth rate, would be adopted chiefly in circles that are essentially eugenically sound and would thus bring about a further reduction in the birth rate. Also, if interruption of pregnancy on eugenic grounds should be permitted, the danger of abuses would be great. Bumke is of the opinion that by wisely directed sterilization of weakminded persons a rapid elimination of these strains can be obtained. However, with schizophrenia, by reason of its unfavorable hereditary prognosis, its recessive character and its transmission by phenotypically sound intermediate progenitors, a rapid improvement cannot be expected. With regard to epilepsy, it appears necessary to sterilize every person whose condition cannot be shown to be due to exogenous causes. In manic-depressive insanity the law should be applied only to patients with pronounced symptoms and not to persons with mild depressive tendencies, as the latter may be valuable members of society. In the case of severe chronic alcoholism the hereditary predisposition is of such a dominant nature that, from the eugenic point of view, offspring are not desirable. These pronouncements were supplemented by a paper of Rüdin of Munich on "Psychiatry and Eugenics," which dealt with eugenic selection. A further need is the establishment of a graduated scale of the best and of the worst families, from the hereditary point of view.

Among some interesting facts reported in various papers, Geyer of Kiel found that in 80 per cent of his imbecile patients the condition could be traced to endogenous causes, whereas the idiots were mostly of exogenous origin. Pohlisch of Berlin found in 395 offspring of 3,500 morphine addicts no evidence of the existence of germinal damage. On the other hand, the children of women addicted to morphine showed serious evidence of withdrawal injuries, from which many of them died.

Pönitz of Halle brought out that encephalography applied to patients with dementia paralytica will reveal to a certain extent what success may be expected from malaria treatment.

A paper by Kretschmer of Marburg dealt with the "Development of Personality in Psychotherapy," which was supplemented by further papers on "Responsibility in Hospitals" and on the "Present Situation in Psychotherapy." Other papers brought out that, because of the increased abuses of hypnotics sold over the counter without a prescription, restrictive legislative measures will doubtless soon be enacted.

Berlin's "Biologic Group" of Physicians

Under the new government the nature cure movement and, in general, the so-called biologic methods have received far-reaching encouragement. A pronouncement of Professor Reiter, the head of the federal bureau of health, reads "The reich will not rear medical men but physicians who can think biologically." But there can be no objection to this statement, since it is entirely in line with the principles of scientific medicine. Recently a so-called biologic group of physicians, which has organized evening discussions for physicians, was created in Berlin. On the first evening set apart for such discussions, Professor Jansen, who has been appointed to the newly created chair for "nature cure and natural mode of living," spoke on the general aspects of his assignment. He emphasized that the chief task and duty of the physician is to prevent disease—by medical advice so to organize the mode of living of the German people that the predisposition to disease shall disappear. In order to bring this about, one of the chief things necessary is to familiarize physicians with the newer knowledge of nutrition and the health-promoting factors light, air, sunshine, water and the like. As compared with the paramount importance of these primary factors, the petty controversies concerning methods are insignificant. The genuine physician should be able to offer solutions also for psychic problems. He should become again a real family adviser—not only in times of sickness but also in days of health. Serving in the capacity of a new type of priest-physician, the people must be led away from the worship of "progress" back to a solid but quiet fulcrum. While disclaiming any desire to belittle the accomplishments of the present epoch, it must be insisted that mankind shall again become the pivot about which all technical discoveries must turn instead of expecting man to revolve about the inventions and discoveries of science like insects about a light. Jansen stated that it was not his aim to create hospitals with never so modern and never so hygienic equipment and arrange-

ments. His goal was an immense "house of health" in the heart of Berlin, where hundreds of thousands of compatriots might become familiar with wholesome food and the value of a life spent in the open, with a maximum of fresh air and sunshine. The "lost connection" between the people and the universities might thus be reestablished. Through such an institution the key to true healing of disease would be found, and in an atmosphere of positive psychic influence, and through the utilization of biologic therapeutic methods, it would be most feasible to bring back health to the whole German people.

On the second evening Dr. Bastanier, instructor in homeopathy at the University of Berlin, spoke on the "Problems of Homeopathy." On the third evening the topic will be "Treatment with Leeches," and on the fourth evening "Nasal Reflex Therapy." On these two evenings not only representatives of well known "schools" will speak but also a number of trail-blazing individualists.

Statistics on Prussian Hospitals

The Prussian bureau of statistics has published a report on the activities of Prussian hospitals during the period from 1879 to 1929, which furnishes evidence of the prodigious development of hospital services. The number of general hospitals rose in this period from 998 to 2,320, and the number of beds increased from 42,497 to 251,545, or from 15.8 to 64 to 10,000 inhabitants. In 1929, 2,470,595 persons received treatment, and the total number of days of hospitalization was 67,500,000, which denoted an eightfold increase over the year 1879. The unprecedented development of the krankenkassen, or health insurance societies (membership in 1885, 2,200,000, and in 1929, 11,700,000), has obviously contributed no small part to the development of the hospitals. In 1879 the average stay in a hospital was 31.6 days, and in 1929 it had dropped to 27.4 days. In 1879 there were 1,360 physicians and 4,728 nurses actively engaged in the hospitals; in 1929 their numbers had risen to 8,533 and 39,958, respectively. Of the diseases treated in the hospitals it may be mentioned as an example that 30,650 persons with tuberculosis were treated during the period 1877-1879, while 419,417 persons were under treatment for that disease in 1929.

Involvement of the Hypophysis in Eclampsia

The hypophysis is commonly assumed to play a part in the origin of eclampsia. Not all manifestations, however, as Bickenbach in a recent address before the Göttingen Medical Society pointed out, can be traced to the unassisted action of the posterior lobe of the hypophysis. Particularly with respect to glomerulosis and the liver changes, doubtless other influences besides the action of the posterior lobe play a part. A discrepancy lies in the fact that the secretion of the posterior lobe induces an excretion of chlorine, whereas in pregnancy and in eclampsia there is a retention of chlorine. In rabbits no difference between the gravid state and the nongravid state, with reference to the excretion of chlorine, was found as a result of the influence of the hormone of the posterior lobe. In the woman in an advanced state of pregnancy, the total excretion of chlorine following injection of posterior lobe is diminished as compared with the results under the same conditions without hypophysin. Tests were likewise instituted to discover to what extent the blood serum is capable of counteracting the antidiuretic and chlorine-evacuating influence of the hormone. It was found that the blood can, for the most part, nullify the action of the hormone; there is, however, no marked difference between the serum of gravidas, nongravidas and preeclamptic subjects. These researches would indicate, therefore, that the hormone theory alone does not suffice to explain the genesis of eclampsia.

JAPAN

(From Our Regular Correspondent)

Aug. 20, 1934.

Doctors for Villages

A donation of 6,000,000 yen has recently been contributed by Mitsubishi, the most famous millionaire here, for social welfare work. One million yen is to be spent to establish medical facilities in villages where there have not been any. The number of such villages is reported officially to amount to 3,527 throughout the country. But about 1,000 villages are reported to be in urgent need of medical facilities. The government is busy preparing to appoint the official doctors within the year in about 500 villages. The building of the clinic or offices, costing each about 2,000 yen, will be begun before long under the superintendence of the local government. By 1936, 1,000 doctors will be appointed to these remote villages. As a rule, there will be no medical fee in case of poor farmers and fishermen, but for well-to-do people there will be a small fee, which is expected to be paid chiefly by the annual relief fund or from special grants made by the emperor yearly.

Regulations for Prevention of Accidents

The home office has drawn up regulations concerning the prevention of accidents and for safety in workshops and places engaged in all major industries other than factories and mines, which are already covered by the factory law, the regulations concerning accident prevention and hygiene in factories, the regulations concerning dormitories attached to factories, the mining law, and the regulations concerning work and relief of miners. The regulations concerning safety and hygiene in places of quarrying or digging or extracting stone, gravel, sand or soil from the earth came into force June 1. The regulations provide facilities and equipment concerning prevention of accidents and hygiene in workshops. They are as follows:

1. Selection and appointment of supervisors to take charge of matters concerning prevention of accidents and hygiene.
2. Provision of safety passages, safety facilities and equipment in shafts, passages and ladders underground.
3. Facilities and equipment in open mines.
4. Measures for the prevention of falling bodies.
5. Safety facilities in transportation by vehicles on rails.
6. Safety devices for winches.
7. Care in handling gunpowder and other explosives.
8. Facilities to prevent workers in dangerous places from falling.
9. Prevention of dust.

Opticians and Ophthalmoscopy

It is said that 40 per cent of the school children and more than half of the adults are affected with subnormal sight. Ophthalmoscopy, naturally, is demanded on all sides. The opticians in the greater cities and towns have of late established a dark room for the examination of the eyes. When the examiners are the clerks, the examination is usually free. When qualified doctors do this work, some charge but others require no fee. At present there are few who go to the doctor for the examination, but many go to the optician's to have an examination free of charge. Therefore, whether ophthalmoscopy is practicing medicine or not has come to be discussed loudly. The opticians and those who work in the shops have petitioned the government to the effect that a license should be granted to them in recognition of their experience or the license should be granted through some kind of examination. They want the title "ophthalmetrist" independent of the doctors. The Japan Ophthalmologic Association has also made a representation to the government in opposition to the opticians' petition. Sooner or later, the ophthalmetrist probably will be licensed, as the public need for more refraction tests is urgent.

Subnormal School Children

The department of physical education of Tokyo has reported a recent investigation of the weak boys and girls in 541 primary schools containing 694,147 children in which methods differing from any previous investigation were used. The department asked the teachers to report the number of boys and girls whom they thought to be too weak, physically or mentally, to be among the normal boys or girls. Formerly this was usually done by means of physical or mental examination by specialists. The following seven items were reported on by the teachers: (1) inferior mental power; (2) feeblemindedness; (3) reduced hearing; (4) weak sight; (5) stammering; (6) sickliness; (7) deformity. A comparatively small number was so reported. The criteria were whether weak boys or girls should be specially educated. The numbers were as follows: (1) 7,783, (2) 7,206, (3) 1,023, (4) 2,020, (5) 2,880, (6) 3,841, (7) 1,865. Special classes for such children are as yet insufficient but the authorities are making a great effort to establish special schools.

Increase in Suicide

In the Tokyo Prefecture 1,805 persons committed suicide in 1933 and 2,000 attempted suicide, while 1,585 committed suicide in 1932 and 1,048 attempted suicide. When in 1922 the population of this prefecture was 3,790,000, the suicides numbered 916 and attempted suicides 453. Ten years after this, in 1932, the population was 5,870,000. The causes were sickness 20 per cent, poverty and unemployment 13 per cent, and family trouble and disappointment in love 9 per cent. The favorite place for committing suicide is the crater of the volcano Miharayama on a small island near the bay of Tokyo, where 125 suicides occurred during 1933 and 826 attempted suicides. It has long been believed in this country that suicide for a cause is noble, and few think it is wrong to kill oneself. The government and the private social welfare agencies have joined in providing medical care for the distressed.

Current Medical Literature

The *Japan Medical World*, a weekly journal, whose proprietor is Dr. S. Tsuchiya, a member of parliament, will add to every issue more than four pages of all the Japanese medical literature written in foreign languages. This material will be abstracted from about forty medical journals in this country and will be sent to all the important universities, laboratories, manufacturers, scholars and publishers all over the world from July this year.

Dr. Rudolph Bolling Teusler

Dr. Rudolph Bolling Teusler, director of St. Luke's Medical Center, died August 10 at St. Luke's Hospital. He had been suffering from heart disease for four years. At the earnest request of his family and friends, he went to Arizona last September to recover his health. He returned to Japan last July. It is believed that he worked too hard here for the institution to which he had devoted thirty-four years of his life. In recognition of his merits, he was decorated with the fifth class Order of the Rising Sun. The completion of the new St. Luke's Hospital last year crowned his career as medical missionary in Japan. Acknowledged as the best in the Orient, the institution is an impressive example of the work of American Christian philanthropy. He was born at Rome, Ga., Feb. 25, 1878. He was graduated with the degree of Doctor of Medicine from the medical college of Virginia in 1894; where from 1896 to 1900 he was assistant professor of pathology and bacteriology. He came to Japan in 1900. He was once physician to the British embassy and later was a member of a commission to provide postgraduate medical training in the United States for Japanese students. He did valuable work with the Red Cross in the Allied expedition to Siberia. He began working in 1903 on the institution that was to become the St. Luke's International Medical Center of today.

Marriages

CLAIRE M. DIXON, Ina, Ill., to Miss Lucile Montane of Sacramento, Calif., in East St. Louis, Ill., September 8.

WILLIAM DORUS STUBENBORD, New York, to Miss Jean Cardiff Tennant of Jersey City, N. J., June 16.

EUGENE LA FORREST SWAN, Brooklyn, to Miss Elizabeth Farwell Mann of Waltham, Mass., August 31.

CYRIL FANTUS SHERMAN, Danville, Ill., to Miss Jennie Eylene Worden of Hillsboro, Wis., May 27.

LEWIS MONROE SMITH, Atlanta, Ga., to Miss Edna Louise Mabee of Saratoga Springs, N. Y., June 2.

BENJAMIN MARVIN HAND to Miss Adelaid A. Hancock, both of Philadelphia, June 9.

VERNON SHELTON DICK to Miss Blossom Bacon, both of Ann Arbor, Mich., Sept. 5.

EDWARD L. SPANGLER, Ouray, Colo., to Miss Mabel Sanders of Chicago, May 19.

IRVING SCHOENFELD to Miss Ruth Levy, both of New York, June 14.

Deaths

Thomas Edward Satterthwaite, New York; College of Physicians and Surgeons in the City of New York, medical department of Columbia College, 1867; member of the Medical Society of the State of New York; a founder and fellow of the American College of Physicians; served in the Franco-Prussian War; one of the founders, and at one time secretary, vice president, professor of pathologic anatomy and general medicine, Post Graduate Medical School; lecturer on comparative pathology, Columbia Veterinary College, 1881-1882; organized the medical and surgical staff of the Chambers Street House of Relief, now the Hudson Street Hospital, in 1875; a founder and president, 1894-1899, of the Babies' Hospital; microscopist and later pathologist at St. Luke's Hospital, 1872-1882; pathologist to the Presbyterian Hospital, 1873-1888; consulting physician to the Post-Graduate, Orthopedic and Manhattan State hospitals; served as a first lieutenant in the U. S. Army Reserve Corps, 1911-1917; author of "Manual of Histology," "Practical Bacteriology," "Diseases of the Heart and Aorta," "Cardio-Vascular Diseases," and "Diseases of the Heart and Blood Vessels" and many other works; aged 91; died, September 19, of senility.

Frank Tryon Stevens ✠ Colorado Springs, Colo.; Northwestern University Medical School, Chicago, 1893; member of the American Psychiatric Association, Association for Research in Nervous and Mental Diseases and the Central Neuropsychiatric Association; past president of the El Paso County Medical Society; on the staffs of the Mount Pleasant (Iowa) State Hospital, 1896-1912, and the Milwaukee Sanitarium, Wauwatosa, 1912-1913; on the staffs of the Union Printers' Home and Tuberculosis Sanatorium, Glockner Hospital, Bethel Hospital and St. Francis Hospital; aged 67; died, September 6, of arteriosclerosis and cerebral hemorrhage.

William Palm, Brazil, Ind.; Medical College of Indiana, Indianapolis, 1905; member of the Indiana State Medical Association; at one time secretary of the Clay County Medical Society; served during the World War; county health officer; formerly coroner and jail physician; on the staff of the Clay County Hospital; aged 51; died, September 10, at his home in Harmony, of heart disease.

John Henry Kuser ✠ San Rafael, Calif.; Universität München Medizinische Fakultät, Munich, Bavaria, Germany, 1885; past president and secretary of the Marin County Medical Society; formerly on the staff of the San Rafael Cottage Hospital; aged 71; died, August 27, of acute hepatitis, atrophic cirrhosis of the liver and arteriosclerosis.

Marcus Fitzherbert Wheatland ✠ Newport, R. I.; Howard University School of Medicine, Washington, D. C., 1895; member of the New England Roentgen Ray Society; formerly trustee to the Howard University, Washington, D. C.; visiting physician to the Newport Hospital; aged 66; died, August 16, of diabetes mellitus and bronchopneumonia.

Abram Barnes Hooe, Washington, D. C.; Columbian University Medical Department, Washington, 1896; member of the Medical Society of the District of Columbia; fellow of the American College of Surgeons; served during the World War; aged 63; died, September 19, in the Walter Reed General Hospital, of carcinoma of the ileum.

Alexander W. Acheson, Denison, Texas; University of Pennsylvania School of Medicine, Philadelphia, 1867; member of the State Medical Association of Texas; past president and secretary of the Grayson County Medical Society; on the staff of the Denison City Hospital; aged 91; died, September 7, of myocarditis and chronic nephritis.

Alden Blodgett MacDonald, Warren, Pa.; Jefferson Medical College of Philadelphia, 1904; member of the Medical Society of the State of Pennsylvania; president of the Warren County Medical Society; on the staffs of the Warren General and Warren State hospitals; aged 54; died, August 16, of carcinoma of the liver.

George Willard Mehl, Ashland, Ohio; Ohio Medical University, Columbus, 1904; member of the Ohio State Medical Association; veteran of the Spanish-American War; formerly county health officer; on the staff of the Samaritan Hospital; aged 68; died, August 29, of myocarditis and chronic interstitial nephritis.

Martyn David Sheehan ✠ Stoneham, Mass. (licensed in Massachusetts in 1895); member of the New England Obstetrical and Gynecological Society; member of the board of health; aged 63; on the staff of the Winchester (Mass.) Hospital, where he died, September 4, as the result of an automobile accident.

Russell Edward Titman ✠ East Orange, N. J.; New York Homeopathic Medical College and Flower Hospital, 1912; on the staff of the Montclair (N. J.) Community Hospital; aged 44; died suddenly, September 8, in the Mountainside Hospital, Montclair, of sciatica, anaphylaxis and pulmonary edema.

Eudora Pierce Higgins Chisman, Boston; Woman's Medical College of the New York Infirmary for Women and Children, 1894; an affiliate Fellow of the American Medical Association; aged 70; died, August 22, in the Palmer Memorial Hospital, following an operation for removal of the gallbladder.

James Joseph La Salle, Phoenix, Ariz.; University of Michigan Medical School, Ann Arbor, 1896; member of the American Laryngological, Rhinological and Otological Society; formerly health officer of Toledo, Ohio; aged 59; died, July 22, of malignancy of the left brachial plexus.

Gerald Stinson Glassco, Hamilton, Ont., Canada; University of Toronto Faculty of Medicine, 1893; member of the American Psychiatric Association; member of the local lunacy commission and director of the mental hygiene clinic of the board of health; aged 62; died, July 22.

Wesley Johnson Barrett ✠ Camden, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1901; fellow of the American College of Surgeons; surgeon to the West Jersey Homeopathic Hospital; aged 60; died, September 13, in Haddonfield, of cerebral hemorrhage.

Jay Clarence Knipe ✠ Philadelphia; Jefferson Medical College of Philadelphia, 1890; associate professor of ophthalmology at his alma mater; on the staffs of the Jefferson, Jewish and Mary J. Drexel hospitals; aged 65; died, September 2, of coronary thrombosis.

Edwin Woodbridge Morse, Portland, Ore.; Jefferson Medical College of Philadelphia, 1908; member of the Oregon State Medical Society; served during the World War; aged 58; died, August 22, in San Francisco, of carcinoma of the prostate and uremia.

Jay Hathaway Utley, Beverly Hills, Calif.; Bellevue Hospital Medical College, New York, 1883; member of the California Medical Association; formerly emeritus professor of medicine, University of California Medical Department; aged 75; died, July 12.

Charles Lusby Pearson, Newton, Mass.; University of Maryland School of Medicine, Baltimore, 1883; an Affiliate Fellow of the American Medical Association; aged 73; died, September 8, of coronary thrombosis and gastric ulcer with hemorrhage.

Elias Harry Pofcher, Worcester, Mass.; Tufts College Medical School, Boston, 1904; member of the Massachusetts Medical Society; also a lawyer; alderman; aged 53; died, August 28, in the Beth Israel Hospital, Boston, of cirrhosis of the liver.

Bertram Edwin Marshall ✠ New Brighton, Pa.; New York Homeopathic Medical College and Hospital, 1899; served during the World War; on the staff of the Beaver Valley General Hospital; aged 60; died suddenly, August 30, of heart disease.

Joseph W. Largent, McKinney, Texas; University of Louisville (Ky.) School of Medicine, 1888; past president of the State Medical Association of Texas and the Collin County Medical Society; aged 71; died, July 31, of angina pectoris.

William Arthur Warner, Claude, Texas; Northwestern University Medical School, Chicago, 1894; member of the State Medical Association of Texas; served during the World War; aged 69; died, July 31, in a hospital at Amarillo.

Joseph Zimmerman Wild, Brooklyn; Victoria University Medical Department, Coburg, Ont., Canada, 1883; member of the Medical Society of the State of New York; aged 74; died, August 11, of carcinoma of the stomach.

Charles Wills King, Dayton, Ohio; Medical College of Ohio, Cincinnati, 1878; member of the Ohio State Medical Association; formerly superintendent of the Dayton State Hospital; aged 79; died, August 23, of senility.

Frank A. Winneman, Merrill, Wis.; Milwaukee Medical College, 1897; member of the State Medical Society of Wisconsin; on the staff of the Holy Cross Hospital; aged 70; died, August 25, of angina pectoris.

Samuel H. Snow, Kansas City, Mo.; Kansas City Hahnemann Medical College, 1908; member of the Associated Anesthetists of the United States and Canada; aged 62; died, August 23, of chronic myocarditis.

H. Marion Williams, Oklahoma City (registered in Oklahoma by the state board of health, under the Act of 1908); member of the Oklahoma State Medical Association; aged 62; died, in August, of heart disease.

Thomas T. Waggoner, Freeport, Ill.; Barnes Medical College, St. Louis, 1899; member of the Illinois State Medical Society; on the staff of St. Francis Hospital; aged 71; died, September 2, of heart disease.

Edwin A. Jarecki, Philadelphia; University of Michigan Medical School, Ann Arbor, 1891; for many years chief resident physician at the Jewish Hospital; aged 67; died, September 9, of heart disease.

Harold Payne Lawrence, Bay City, Mich.; Detroit College of Medicine, 1905; on the staff of the Mercy Hospital; aged 50; died, August 16, of injuries received in a fall from a second story window.

Gordon Flewellen Chambers, Columbus, Ga.; Atlanta College of Physicians and Surgeons, 1900; formerly member of the city council; aged 59; was found dead, August 2, of pulmonary hemorrhage.

John A. Welch, Letts, Ind.; Hospital College of Medicine, Louisville, Ky., 1898; member of the Indiana State Medical Association; aged 60; died, August 24, of uremia and hypostatic pneumonia.

Edward Kirtland Morton, Point Loma, Calif.; College of Physicians and Surgeons in the City of New York, medical department of Columbia College, 1884; aged 78; died, July 24, of myocarditis.

James Martin Melvin, St. Louis; Missouri Medical College, St. Louis, 1891; for many years member of the city health department; aged 68; died, July 24, of a self inflicted bullet wound.

Elmer Ellsworth Harrison, West Concord, Minn.; University of Minnesota Medical School, Minneapolis, 1897; member of the Minnesota State Medical Association; aged 68; died in June.

Jacob Warren Smith, Terre Haute, Ind.; Homeopathic Medical College of Missouri, St. Louis, 1891; aged 72; died, July 26, in St. Anthony's Hospital, of lobar pneumonia and myocarditis.

John W. Watzek, Davenport, Iowa; State University of Iowa College of Homeopathic Medicine, Iowa City, 1881; aged 76; died, August 25, in Portland, Ore., of coronary thrombosis.

William G. Spence, Chestnut Bluff, Tenn.; Memphis Hospital Medical College, 1903; aged 53; died, August 28, in the Baptist Memorial Hospital, Memphis, of ruptured appendix and peritonitis.

Thomas Bernard Butler, St. Louis; St. Louis University School of Medicine, 1911; member of the Missouri State Medical Association; aged 49; died, September 1, of chronic nephritis.

Louis Legault, Cornwall, Ont., Canada; School of Medicine and Surgery of Montreal, Faculty of Medicine of the University of Laval at Montreal, Que., 1901; aged 61; died, July 11.

Harry Irvin Shoenthal ✠ New Paris, Pa.; Jefferson Medical College of Philadelphia, 1906; past president and secretary of the Bedford County Medical Society; aged 52; died, July 10.

Fred H. A. Mallinson, Houston, Texas (registered by Texas State Board of Medical Examiners under the Act of 1907); aged 56; died, August 23, of a self inflicted bullet wound.

John Joseph Loughlin, Wakefield, Mass.; Boston University School of Medicine, 1903; member of the Massachusetts Medical Society; aged 54; died, September 6, of cerebral hemorrhage.

Thomas Benton Mansfield, St. Louis; Barnes Medical College, St. Louis, 1904; formerly professor of anatomy at his alma mater; aged 63; died, July 21, of cerebral hemorrhage.

Francis Ernest Thornton, East Aurora, N. Y.; University of the City of New York Medical Department, 1886; aged 71; died, September 17, of uremia, myocarditis and nephritis.

Jonathan Blythe Core, Bethesda, Tenn.; Vanderbilt University School of Medicine, Nashville, 1892; member of the Tennessee State Medical Association; aged 63; died, July 12.

Chester A. Wright, Fulton, Ky.; Hospital College of Medicine, Louisville, 1907; aged 52; died, August 13, in the Western State Hospital, Hopkinsville, of cerebral hemorrhage.

Ernest Paul Wheeler, Long Beach, Calif.; State College of Physicians and Surgeons, Indianapolis, 1907; aged 56; died, July 27, in the Community Hospital, of acute coronary occlusion.

Emma E. Crook McKay, Hollister, Calif.; University of California Medical Department, San Francisco, 1892; member of the California Medical Association; aged 73; died, July 8.

Herman Corwin Homer, Cheyenne Wells, Colo.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1898; aged 64; died, July 7.

William E. Kelsey, Monterey, Ind. (licensed in Indiana in 1899); also a druggist; for many years postmaster of Monterey; aged 75; died, August 16, of cerebral hemorrhage.

Reuben Ellsworth Mercer, Pittsburgh; Western Pennsylvania Medical College, 1892; aged 64; died, June 26, in the Southside Hospital, of lung abscess and hemorrhage.

Charles Wilbur Smith, Springfield, Mo.; Beaumont Hospital Medical College, St. Louis, 1901; member of the Missouri State Medical Association; aged 61; died, July 8.

Arthur Henry Reinstein ✠ San Francisco; Cooper Medical College, San Francisco, 1907; aged 50; died, August 17, in St. Francis Hospital, of cerebral hemorrhage.

De Witt Clinton Van Zile, New York; Baltimore Medical College, 1905; ship surgeon to the *Morro Castle;* aged 54; died, September 8, in the *Morro Castle* disaster.

Younger Pitts Robards, St. Louis; Barnes Medical College, St. Louis, 1902; aged 61; was found dead, July 6, of chronic myocarditis and pulmonary hemorrhage.

Harry Hood Whitten, Temple City, Calif.; Northwestern University Medical School, Chicago, 1896; aged 65; died, July 30, in Alhambra, of cerebral hemorrhage.

John Whalen Doyle, Boone, Iowa; University of Michigan Medical School, Ann Arbor, 1888; aged 77; died, July 31, of diabetes mellitus and carbuncle of the neck.

Clarence D. Whipple, Minneapolis; University of Minnesota Medical School, Minneapolis, 1903; aged 71; died, July 27, of arteriosclerosis and myocarditis.

George Clarence Shepard, El Cajon, Calif.; Harvard University Medical School, Boston, 1884; aged 80; died, July 20, of pulmonary tuberculosis.

William Samuel Taylor, Mount Airy, N. C.; Jefferson Medical College of Philadelphia, 1873; aged 84; died, August 29, in Greensboro, of heart disease.

Charles G. Rankin, Glastonbury, Conn.; Chicago Medical College, 1886; for many years health officer; aged 74; died, August 11, of chronic myocarditis.

Simon Horowitz, East Orange, N. J.; Syracuse University College of Medicine, 1892; aged 30; was found dead, September 6, of accidental asphyxiation.

Clark Watson Banks, Derry, Pa.; Toledo Medical College, 1888; aged 74; died, August 31, at the Latrobe (Pa.) Hospital, of chronic myocarditis.

John William Lorenz, Evansville, Ind.; Louisville (Ky.) School of Medicine, 1903; aged 76; died, July 28, of uremia and parenchymatous nephritis.

Samuel Dixon Mayhew, Wildwood, N. J.; Jefferson Medical College of Philadelphia, 1900; aged 60; died, August 24, in Millville, of heart disease.

George Parkin Stubbs, Pasadena, Calif.; Hahnemann Medical College and Hospital of Philadelphia, 1890; aged 68; died, August 15, of influenza.

John Tyler Williams, Washington, D. C.; Milwaukee Medical College, 1910; aged 56; died, July 21, of cerebral hemorrhage and hemiplegia.

Russel Bennett Miller, Chicago; Columbus Medical College, 1880; aged 77; died, September 19, at Gleason, Wis., of pulmonary tuberculosis.

James F. Smith, Martha, Ky.; Kentucky School of Medicine, Louisville, 1903; aged 57; died, August 27, of a self inflicted bullet wound.

Mary Muriel Currie MacLennan, London, Ont., McGill University Faculty of Medicine, Montreal, Que., 1927; aged 42; died, August 22.

Joel S. Morris, Fort Worth, Texas; Kentucky School of Medicine, Louisville, 1875; aged 85; died, August 18, of cerebral arteriosclerosis.

Max C. Handley, Longmont, Colo.; Kansas City University of Physicians and Surgeons, 1925; aged 38; was found dead, September 4.

Howard M. Wood, Mears, Mich.; Vanderbilt University School of Medicine, Nashville, Tenn., 1886; aged 85; died, July 23, of senility.

William Alexander McCracken, Montreal, Que., Canada; McGill University Faculty of Medicine, Montreal, 1910; aged 47; died, June 22.

Nelson O. Brenizer, Austin, Texas; Homeopathic Hospital College, Cleveland, 1880; aged 80; died, August 7, of chronic nephritis.

Alfred W. Girvin, Calgary, Alta., Canada; Queen's University Faculty of Medicine, Kingston, Ont., 1905; aged 54; died, June 11.

J. T. Hawkins, Bartow, Fla.; University of Georgia Medical Department, Augusta, 1891; aged 69; died, August 9, of heart disease.

Fletcher T. Mixon, East Point, Ga.; University of Georgia Medical Department, Augusta, 1881; aged 79; died, August 8, of nephritis.

Jacob J. Simonds, Kingston, N. Y.; University of Buffalo School of Medicine, 1890; aged 76; died, August 3, of myocarditis.

Robert Edward Lee Hughes, St. Louis; Barnes Medical College, St. Louis, 1910; aged 62; died, August 31, of pneumonia.

Donald MacGregor Mackay, Vancouver, B. C., Canada; Jefferson Medical College of Philadelphia, 1896; aged 63; died, August 29.

Thomas Lowell Butters, Vancouver, B. C., Canada; University of Toronto Faculty of Medicine, 1913; aged 44; died, August 11.

Thomas Symes Genge, Verona, Ont., Canada; Queen's University Faculty of Medicine, Kingston, 1901; aged 64; died, June 29.

Joao Pinto, Los Angeles; Faculdade de Medicina de Lisbon, Portugal, 1903; aged 60; died, July 14, of arthritis and angina pectoris.

William Edward Sullivan, Brooklyn; Long Island College Hospital, Brooklyn, 1889; aged 67; died, September 4, of heart disease.

George S. La Moree, Highland, N. Y.; Albany (N. Y.) Medical College, 1872; formerly postmaster; aged 85; died, July 7.

Douglas Craddock Murden, Los Angeles; Meharry Medical College, Nashville, Tenn., 1913; aged 50; died, July 10.

Clarence Otho Jefferies, Savannah, Mo.; University Medical College of Kansas City, 1888; aged 81; died, July 11.

Harley N. Baker, Wayland, Mich.; Hering Medical College, Chicago, 1894; aged 70; died, August 24, of pneumonia.

Charles A. King, Sussex, N. B., Canada; College of Physicians and Surgeons, Baltimore, 1904; aged 59; died, June 11.

Elmer Otis Richardson, Marion, Ohio; Columbus Medical College, 1884; aged 73; died, July 6, of cerebral hemorrhage.

Hiram Orville King, Curwensville, Pa.; Jefferson Medical College of Philadelphia, 1893; aged 66; died, July 5.

Thomas P. Bradley, Sarnia, Ont., Canada; Trinity Medical College, Toronto, 1897; aged 61; died, June 30.

George B. Foster, Toronto, Ont., Canada; Pulte Medical College, Cincinnati, 1876; aged 85; died recently.

Isaac L. Edwards, Benton, Pa.; Jefferson Medical College of Philadelphia, 1870; aged 89; died, June 12.

Rufus S. Harvey, National City, Calif. (licensed in Nebraska in 1891); died, June 27.

Correspondence

BIRTH CONTROL AND CONTRACEPTION

To the Editor:—The editorial on "Birth Control and Contraception" in THE JOURNAL, September 8, is naturally of interest to the National Committee on Maternal Health, which since 1923 has been studying these and allied questions as problems of public health and the practice of medicine. Since 1929 we have conducted a systematic and comprehensive investigation into the nature and merits of various contraceptive products and methods. The result of the first three years study, done in cooperation with the University of Edinburgh, was published in a volume by Cecil I. B. Voge, Ph.D., F.R.S.E., F.R.S.M., under the title of "The Chemistry and Physics of Contraceptives" (London, Jonathan Cape, 1933).

Voge's study established the factual basis for the evaluation of contraceptives in terms of physics, chemistry and biology. The next step was obviously to apply the tests to the commercial products now most widely used and exploited, and concomitantly the development of a plan for the control of the contraceptive industry in the interest of a sound practice of preventive medicine.

The present undertaking has two phases: First, a laboratory and clinical investigation centered in London, under Dr. Voge's direction, for determining the harmlessness and efficacy of particular products, is concerned primarily with the development of appropriate tests and mechanisms for use in routine checking and evaluating of large quantities of material, as required by the dimensions of the industry and practice. Especial attention is given to American products. The second is an intensive and extensive study of medical-economic features, including methods of manufacture, testing, distribution, merchandising, and advertising through medical and lay channels. This is under the direction of our standards consultant, Mr. Randolph Cautley, business analyst.

Our ultimate objective is the development of a reference and standardization service, and consequent control of the practice of contraception by the medical profession, through its duly constituted authorities. We have accordingly been studying the existing laws and agencies that might be involved in a plan for control, such as the postal laws, the food and drug acts, the federal trade commission or national scientific and professional societies and boards of pharmacy and medicine.

Since 1924 the committee has repeatedly urged on the Board of Trustees of the American Medical Association, and especially the Council on Pharmacy and Chemistry, that it take these matters into serious consideration and furnish guidance in the choice of materials and methods. Until now the trustees have declined any such undertaking, as has the U. S. Public Health Service, when similarly approached.

Clearly, however, no private organization could serve adequately, and only the American Medical Association or a national governmental agency would function with the requisite scope and authority. The committee therefore welcomes the expression of interest by the American Medical Association, especially the final statement that "the situation now prevailing is warrant for some type of action leading to scientific control" and offers to place at its disposal our accumulated material and information, together with programs, plans and outlines of projects evolved during our studies of more than ten years.

Incidentally, the committee has long been interested in the question of the "safe period" as a birth control method and in 1927 published the first elaborate study and evaluation of available data (Dickinson, R. L.: *Am. J. Obst. & Gynec.* **14**:718 [Dec.] 1927). In 1931 the matter was again reviewed in the illustrated manual "Control of Conception" (Dickinson and Bryant, Baltimore, Williams and Wilkins Company, 1931) and we have been in touch with the later developments, various investigators and the rapidly accumulating literature.

Certain concrete achievements in the direction of scientific control are to be noted. Especially significant is the action of the *British Medical Journal* in adopting a policy of accepting advertisements of contraceptives, if and when their presumptive harmlessness and relative efficacy have been assured, and the truthfulness of the advertising accredited. Since early in 1933, Dr. Voge has acted as referee on the matter for the *British Medical Journal* and later for the *Lancet* and *Practitioner*. In the spring of 1934 the *American Journal of Obstetrics and Gynecology* adopted a similar policy, with our committee as referee.

These mark the beginning of a program for the control by the medical profession of contraception as a recognized part of preventive medicine, for the primary object of such selective advertisement is not the negative one of censorship but the positive one of informing the doctor of reliable measures.

The whole situation with respect to contraception is changing so rapidly, and at so many levels and in so many directions, that any attempt to affect it must be both comprehensively conceived and decisively executed.

HAVEN EMERSON, M.D., Chairman.
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NATIONAL COMMITTEE ON MATERNAL HEALTH, INC.,
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Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

NERVOUS SYSTEM IN PERNICIOUS ANEMIA

To the Editor:—Is there anything that can be done to prevent complications due to pernicious anemia, especially posterolateral sclerosis? I have two patients under my care at the present time, both receiving treatment for pernicious anemia, one 55 and the other 60, who have developed symptoms of posterolateral sclerosis. They have done so in spite of the fact that they have been receiving liver treatment, which raised the blood count to practically normal level. Can the degenerative factors develop in the posterolateral cord at the same time that the anemia develops and only later show symtoms?

NATHAN STEINBERG, M.D., Philadelphia.

ANSWER.—The most serious complication of pernicious anemia is usually the disturbance of the nervous system. The development of posterolateral sclerosis may occur early or late in relation to the development of anemia and may sometimes occur under treatment sufficient to maintain a normal blood count. It is probable, however, that the neurologic complications will not usually develop in patients who are receiving large amounts of active material (liver extract or desiccated stomach) by mouth with regularity. If, under these conditions, paresthesias appear, the treatment immediately indicated is an increase of the dosage of active principle, irrespective of the blood level. It is usually easy to effect this increase by changing from oral therapy to therapy with parenteral liver extract; but if parenteral liver extract is already being administered, its dosage should be increased and so maintained for a period of months. It is of course important to use products known to be effective.

The first principle of the treatment of posterolateral sclerosis is prophylaxis; in other words, an increase of the potency of active material whenever symptoms referable to the nervous system appear, irrespective of the blood level or of the condition of the patient in other respects. In a general way, the longer the symptoms and signs of posterolateral sclerosis have existed, the greater the difficulty in treating them. If the complication has been present for six months or a year, further progress can be arrested with adequate amounts of effective substances, but the damage to the nervous system is probably not susceptible of repair. Although improvement of the objective neurologic

signs under these conditions will usually not occur, the relief of paresthesias is usually complete and there may be great improvement in coordination. No effort should be spared in persisting in large doses of active principle, especially in the use of liver extract parenterally administered and in orthopedic measures for the improvement of walking ability.

TREATMENT OF DUODENAL ULCER AFTER HEMORRHAGE

To the Editor:—Would you be good enough to suggest treatment of duodenal ulcer following hemorrhage, giving specific details as to amount of activity allowed and modification, if any, of Sippy diet and within what time limits?

M.D., Quebec.

ANSWER.—If there has been no emesis, the patient should be fed from the outset, beginning with small amounts of frozen or ice cold milk or cream followed by a powder of calcium carbonate, 1 Gm. (15 grains), and bismuth subcarbonate 0.3 Gm. (5 grains). These should be given fifteen minutes after and on the hour between feedings with water. Feedings should be every two hours from 8 a. m. to 8 p. m. In addition, atropine sulphate should be given, 0.4 mg. (1/150 grain), with water by mouth twice a day. The milk and cream feedings are gradually increased day by day until at the end of the week the patient is taking 8 ounces of milk and cream every two hours. Orange juice at this time may be added in increasing amounts. From this point on foods that go to make an ulcer diet are gradually added. At the end of the third or fourth day, if there has been no bowel movement, the patient should have a small retention enema of from 3 to 4 ounces of warm liquid petrolatum, and this is to be repeated once or twice a day until the patient has a bowel movement and kept up as long as necessary. All stools should be examined daily for occult blood. The hemoglobin and erythrocyte count should be made daily as an index to the cessation of bleeding. The patient's blood should be typed at the outset for possible transfusion, which may be necessary during the course of treatment. Frequent determination should be made of the blood chemistry, particularly the carbon dioxide, nonprotein nitrogen and sugar. If there is any tendency toward alkalosis, calcium carbonate should be omitted and tertiary calcium phosphate substituted. After the stools have become negative for occult blood, magnesium carbonate, 0.3 or 0.65 Gm. (5 or 10 grains) may be added to the powders. As a rule the average uncomplicated duodenal ulcer stops bleeding in a week or ten days. If bleeding persists beyound a period of two weeks' management and into the third week, one should seriously consider giving a blood transfusion and, if bleeding continues, surgical intervention for a complicated and indolent chronic ulcer should be seriously considered. If occult blood has disappeared from the stool, the patient should remain in the hospital for a period of three or four weeks and then from four to six weeks should be allowed to elapse before any roentgen investigation is done. Following the patient's dismissal from the hospital, one should determine possible foci of infection as etiologic factors in the life cycle of the ulcer. Particularly is this true of diseased teeth and tonsils, which, from the standpoint of empiricism, should be removed. If hemorrhage has been recurring for a period of years after the cessation of this hemorrhage, surgical intervention may be the wisest permanent procedure.

FLUID INTAKE IN EDEMA

To the Editor:—Will you clarify for me the problem of fluid intake in various types of edema? I was taught that it is not "work" for the kidney to put out water. I am not thinking so much of cardiac decompensation when obviously the entire circulation is impaired and the heart is the primary organ to be considered, as I am of nephridtides and especially of preeclamptic toxemia. Please omit name and town.

M.D., Massachusetts.

ANSWER.—Toxemia of pregnancy is not characterized by one typical form of pathologic lesion but may manifest itself in one of three ways: (1) by general vascular injury, (2) by involvement of the renal glomeruli, and (3) by degenerative processes, especially in the liver and in the renal tubules. The renal disturbances in preeclamptic toxemia may appear as acute glomerulonephritis or as acute nephrosis. Edema is more characteristic of the second type than of the first.

Edema may be the result of (1) a decrease in colloid osmotic pressure of the plasma proteins, as in nephrosis, (2) an increase in permeability of capillaries, as in glomerulonephritis, and (3) an increase in hydrostatic pressure in the capillaries, as occurs with cardiac decompensation. These three types of edema may coexist in some cases. Estimations of the protein content of edematous fluid may aid in the differential diagnosis. In nephritic edema the protein content of the fluid is low (less than 0.1 per cent). In the edema of glomerulonephritis the protein content is sometimes high (more than 1 per cent). In cardiac edema the protein content of edematous fluid is variable, but it generally is about 0.5 per cent. Water is filtered through glomeruli in enormous quantities, and about 97 per cent of it is reabsorbed through the tubules, since it is vital to the body and must not be lost. Edema may therefore result from diminution of glomerular excretion or increased tubular reabsorption, or from retention of fluid in diffuse intracellular tissue from disturbances in the concentration of the plasma proteins or electrolytes.

Although edema, of a certain amount at least, may be harmless per se, it seems good practice, regardless of the type of edema, to correct it, certainly to control it. This is done chiefly by strict attention to the patient's intake of salt and water and, if significant retention of urea is not present, by the newer mercurial diuretics and such diuretic salts as ammonium chloride, ammonium nitrate and potassium nitrate. The protein intake is a matter of distinct importance, as further depletion of body proteins may increase edema. In the edema of nephrosis (idiopathic or preeclamptic), when retention of urea generally is absent, the intake of water should be sharply lowered, perhaps to from 600 to 800 cc. daily; no salt should be added to the food during its preparation or taken when it is eaten. The protein intake may be generous, from 70 to 90 Gm. daily.

The presence of both edema and retention of urea presents a dilemma. A generous intake of fluid is desirable to lower the concentration of blood urea, but this may add to the edema. The lesser evil is to give a moderate amount of water, perhaps from 1,000 to 1,200 cc. daily, in order to foster the excretion of urea, and cautiously to ignore the edema for the time being.

DIAGNOSIS OF GENITAL INFECTION

To the Editor:—Three days after exposure, a man, aged 30, developed a copious, yellowish urethral discharge. After one urethral irrigation with plain distilled water and injections twice daily for four days of a weak silver solution, the discharge stopped except for a small drop in the morning. Numerous smears of the urethral discharges, including those from the massaged prostate, have so far failed to show micro-organisms, in spite of the fact that they are teeming with pus and epithelial cells. The right lobe of the prostate was much larger than the left and somewhat spongy, but under massage the size seems to have decreased and the gland seems firmer. After the injections had been discontinued for twenty-four hours the discharge became as copious as it was the first day, but when the injections were resumed it stopped except for the morning drop. Neither before nor after the appearance of the discharge has there been the slightest pain in or near the genitalia, or the least discomfort on urination. The man is in perfect health but has had two chills in the evening, the second about a week after the first. Each chill lasted about half an hour. The urine is normal. The first few ounces of urine voided are invariably cloudy. As urination progresses the urine becomes clearer, but the rest is much clearer and gradually all of it is slightly turbid. He has never had any genito-urinary trouble before. Can you suggest a diagnosis? Please omit name.

M.D., Illinois.

ANSWER.—The presence of a copious yellowish urethral discharge three days after exposure suggests strongly that there was an infection by the gonococcus. It is difficult to account for the origin of a profuse discharge, teeming with pus and epithelial cells without micro-organisms, unless it is due to self medication by the patient; for example, urethral injections of strong solutions of mild silver protein, strong silver protein or silver nitrate. Under these circumstances the patient may be said to have a chemical urethritis, and this should disappear with cessation of the injections.

The fact that the discharge promptly recurs when local treatment is stopped suggests that the patient has an infection in the urethral glands. If this fact can be reasonably assumed, an examination of the anterior urethra with the urethroscope is in order and if infected glands or follicules are found they should be destroyed through the endoscope with a high frequency current.

The statement that the right lobe of the prostate was large and spongy would suggest that an old infection in the prostate is the cause of the trouble. In this event, treatment should be directed to the prostate gland; namely, hot sitz baths, mild prostatic massage, and local treatment of the urethra with mild irrigations of potassium permanganate or injections of mild or strong silver protein.

The presence of chills would corroborate the evidence of infection in the prostate, since infection of the anterior urethra is rarely, if ever, accompanied by chills and fever.

BLOOD SEDIMENTATION TESTS

To the Editor:—Will you kindly send me the technic, including the interpretation, of the Westergren method of blood sedimentation test?

HARRY L. PARKER, M.D., Lockport, N. Y.

ANSWER.—Westergren (*Am. Rev. Tuberc.* **14**:94 [July] 1926) has described a satisfactory method for determining the red blood cell sedimentation rate. Oxalated venous blood is used and the determination may be done at any time within three hours after venipuncture. The same blood can be used for blood chemistry. Only two readings, at fifteen and forty-five minutes, are required. The apparatus is cheap and the pipets are easily cleaned. Well mixed oxalated venous blood is drawn up to the zero mark on the pipet, the excess blood on the tip is wiped off, and the pipet is inserted in the special rack. The upper level of the red cells is read at fifteen and forty-five minutes after the start. Westergren recommended readings at one, two and twenty-four hours. The apparatus and pipets may be obtained from the Arthur H. Thomas Company, Philadelphia.

Also the Linzenmeier method is widely used. The tubes are 7 cm. long and 5 mm. in internal diameter. They must be watched until the cells reach the 18 mm. mark. Citrated blood is used. The Cutter method, given in Kolmer and Boerner's Approved Laboratory Technic, consists in drawing 0.5 cc. of 3 per cent sodium citrate and then venous blood to the 5 cc. mark of a syringe. The blood is mixed and placed in a special tube and read every five minutes for one hour and a curve drawn.

This test is not a special specific test for any disease. The rate of sedimentation is accelerated in active tuberculosis, acute inflammation, infectious diseases, carcinoma, pregnancy and the toxemias. It is of chief value in distinguishing between inflammatory and noninflammatory processes and for estimating the activity or progress of pulmonary tuberculosis. A normal curve is seldom seen in active tuberculosis of the lungs. In acute inflammations the rate of sedimentation is increased. An actively growing cancer is likely to give a greater rate than a slowly growing scirrhous carcinoma.

The rate is influenced by changes in plasma viscosity or in the number, size or hemoglobin content of the red blood cells. Significant increases in the rate are due to clumping of the corpuscles into larger aggregates than usual. This tendency to clumping is probably correlated with changes in the amount of plasma protein. Increase in globulin and also in fibrinogen causes an increased clumping and thus more rapid sedimentation. Increase in albumin seems to have an opposite effect.

Anything over 15 mm. in the forty-five minute period is definitely pathologic. A sedimentation rate of from 15 to 30 mm. in forty-five minutes represents a slight increase, from 30 to 50 mm. a moderate increase, and from 50 to 100 mm. a severe increase.

CARDIAC PAIN AND ANGINA PECTORIS

To the Editor:—A woman, aged 56, weighing 156 pounds (71 Kg.), of obese type, who appears to be 65, suffers excruciating pain over the upper part of the left arm, radiating from the scapula. According to the history given by her son, she has this attack every night. It comes on at about 11 o'clock and lasts ten minutes. She breaks out in perspiration but she does not complain of pain of the heart. She has at times pain around the left hypochondrium. Nothing but morphine gives her any relief, but when it is administered she usually gets over the attack. During the attack the son, who is an adult, has to step over her shoulder and twist her hands and hit the arm to relieve the spasm. The people are ignorant and uneducated miners. On physical examination I found the heart enlarged; the second aortic sound was accentuated; the Austin Flint murmur was absent; no murmurs were present. The Kahn blood test is negative; the urine is negative for sugar and albumin (acid in reaction; the patient asserts that the urine leaves stains on her underwear); the blood pressure is 220 systolic, 100 diastolic. After the administration of glyceryl trinitrate it came down to 178 systolic; the diastolic remained 100, within seven days. She tried various treatments. I placed her on potassium iodide, 10 grain doses (0.65 Gm.) three times a day, phenobarbital, 1½ grains (1 Gm.), at bedtime and glyceryl trinitrate, 1/100 grain (0.6 mg.) every four hours. Is her angiospasm due to the arteriosclerotic condition? Would you consider angina pectoris without pain in the heart? (The pain is commencing around the left side of the neck and radiates downward through the arm, reaching the back also.) I may state that she gets amyl nitrate inhalant and ether during the attack as an inhalation. Hot towels or any physical therapeutic means have no effect. What shall I try? I cannot give her anything intravenously as she is fat and I cannot get to her veins. I thought of magnesium sulphate and dextrose but how shall I introduce it? Please omit name.

M.D., West Virginia.

ANSWER.—The character of the pain as described is quite typical of angina pectoris. The fact that it is not precordial in origin by no means excludes that diagnosis. There are many recorded instances of cardiac pain referred to either or both shoulders, arms and hands, the neck, the abdomen and even more distant locations. The patient's age and evident long standing hypertension also favor this view. However, the fact that the attack always happens at night, presumably without effort, while not excluding angina, does not favor it. Failure of glyceryl trinitrate and amyl nitrite to relieve do oppose the assumption.

There is no reason to believe that peripheral arterial spasm would cause pain of such intensity without objective evidence of impairment of blood supply in the extremity involved. Localized muscle spasm is suggested by the description of the relief measures employed by the patient's son. If this is true, the condition should be evident.

Other possible causes to be considered are nerve pressure, the result of arthritis or other pathologic changes in the spine with nerve root irritation or involvement of the brachial plexus. Local bone and joint changes should be excluded. Diaphragmatic hernia of the von Bergman type may cause thoracic pain having the distribution of that of angina pectoris.

From the information given, the preponderance of evidence would favor the diagnosis of angina pectoris. Theobromine or theophylline compounds are often effective in the relief of pain of this type and may be used over long periods if there is no gastric distress. Theobromine sodium acetate may be given in 0.65 Gm. doses three times a day.

SODIUM IODIDE AND DRAINAGE OF SINUSES

To the Editor:—What value, if any, has sodium iodide, when injected intravenously for the purpose of inducing profuse drainage from infected paranasal sinuses? A case of anterior ethmoidal and frontal sinusitis with no drainage did not seem to progress well under treatment with ephedrine locally, nasal suction, dicalcium phosphate by mouth, haliver oil and viosterol by mouth and Proteolac (Searle) intramuscularly. The patient consulted another physician, who gave her two intravenous injections of a solution containing something like the following to 20 cc. of solution: 32 grains (2 Gm.) each of potassium iodide, sodium iodide and hypoiodides (?), three-fourths grain (0.05 Gm.) of guaiacolates (?) and one-fourth grain (0.016 Gm.) of potassium fluoride. Following two injections forty-eight hours apart, there was moderate drainage of clear fluid from the nose, and relief from pain. The right frontal sinus, formerly dark to transillumination, had cleared up about 50 per cent. Do you know of any preparation like this on the market and what is its value? Please omit name.

M.D., Ohio.

ANSWER.—The injection of a hypertonic solution, such as suggested, in addition to producing the effect of iodides usually produce, seriously alters, for a time at least, the electrolyte balance and the colloid equilibrium. It is not easy to believe that two injections intravenously forty-eight hours apart of a solution such as described would have a curative effect on sinusitis. In fact, there are cases on record in which the opposite has been noted and the therapeutic use of iodides, on the contrary, has been stated to produce sinusitis. Hence one must consider spontaneous recovery, without relationship to the therapy employed.

As said, intravenous medication of this type has definite risks because of the disturbances it produces. In addition, one must consider the delayed toxic effects of iodides in those susceptible. Iodides given by mouth or in any other way increase the secretions from the respiratory tract and do it efficiently if given orally. There is no reason to believe that iodides given in any fashion have a particularly curative behavior in sinusitis. The promiscuous use of medication intravenously should be discouraged unless for specific effect. The risk taken, then, is overbalanced by the benefit to be derived.

INTRAPERITONEAL TRANSFUSION OF BLOOD

To the Editor:—Is it necessary to type blood for intraperitoneal blood transfusion for an infant? What are the dangers of intraperitoneal blood transfusion and how are they avoided? Please omit name.

M.D., Connecticut.

ANSWER.—Blood injected into the peritoneal cavity is absorbed into the blood stream without much change and constitutes a true transfusion. Therefore the blood must be matched to insure compatibility. Some authors state that blood grouping tests are unnecessary with this procedure, but this is a dangerous assumption. Cases have been observed with moderate reaction following intraperitoneal transfusion from donors of the same group when cross agglutination had not been carried out. There also seems to be a popular idea among the profession that it is not necessary to carry out compatibility tests when the patient to be transfused is a small infant. While it is true that only a small number of infants below 6 months of age have fixed blood groups and that in many cases no reaction would occur in the absence of compatibility tests, the fact is established that some infants have fixed blood groups early in infancy. Thus the same careful procedure that is used in

choosing donors for intravenous transfusion in adults must be observed in preparing to transfuse infants by the intraperitoneal route.

With these facts in mind, the dangers of intraperitoneal blood transfusion are first in the technic and secondly in the choice of the patient to be transfused. Under errors in technic may be mentioned the possibility of penetrating the bowel or bladder. This can be easily avoided by making sure that these organs are completely evacuated before transfusion. A fold of the abdominal wall should be picked up and a short bevel needle inserted in the median line 2 inches below the umbilicus. The citrate solution should be freshly prepared and should not be buffered with dextrose. Old citrate solution and dextrose act as a peritoneal irritant. With regard to the patient, the contraindications are the same as for any other type of transfusion with the addition that it should never be used when there is any question of intra-abdominal disease. Whenever abdominal discomfort may be disadvantageous, as in severe cardiac disease or acute pulmonary infections, its use should be carefully considered. Finally, certain gravely ill infants have impaired capacity to absorb blood from the peritoneal cavity. Cases are on record in which a large part of the injected blood has remained in the peritoneal cavity as long as a week. Whenever there is any uncertainty as to absorption, blood should be given, if possible, by the intravenous route.

TREATMENT OF SEBORRHEIC DERMATITIS

To the Editor:—What is the most modern treatment of dermatitis seborrhoeica (eczema soborrhoicum) of the scalp? Is an eruption, acute in onset, accompanied by moderate tenseness and mild itching, before the appearance of vesicles, which are pinhead in size and slightly elevated, with ease of rupture, exudating a thin serous fluid, the underlying layers of exposed skin appearing red and glossy also an eczematous condition? What is the most modern treatment of this condition? These conditions have appeared in the same person. What is the duration of the disease and what is the prognosis? The interdigital spaces of the fingers of the hand are the seat of this eruption, the condition appearing to extend to the dorsum and palmar surface also. Kindly omit name.

M.D., New York.

ANSWER.—The treatment of seborrheic dermatitis has not changed recently, but it has been discovered that some cases resembling this disease are caused by fungi. Salicylic acid, sulphur, resorcinol and the various tars are still the basis of the treatment. Ultraviolet radiation and roentgen rays are valuable aids. For ordinary cases, 3 per cent of salicylic acid and 5 per cent of sulphur in ointment of rose water is satisfactory. If action is slow, various strengths of the other drugs may be added, or the actinic rays may be used. Whitfield ointment, salicylic acid in varying strengths with twice as much benzoic acid in ointment of rose water, is successful in some cases, probably in those caused by fungi. The dermatitis between the fingers in the case under discussion suggests a monilia infection called erosio interdigitalis blastomycetica, and it is only reasonable to suspect that the scalp disease may be due to the same infection. The organism can be cultivated easily on Sabouraud's medium or other sugar mediums at room temperature. If this surmise is correct, daily swabbing between the fingers with half strength tincture of iodine or a 5 per cent solution of iodine in benzene should give prompt results. After apparent healing the treatment should be continued for some time to prevent recurrence, alternating with weak Whitfield ointment to avoid too much staining. The disease tends to recur, presumably by persistence of the infection in the scalp, under the finger nails or in the skin of the hands.

SPINAL ANESTHESIA IN CHILDREN

To the Editor:—What is the current opinion about the safety of spinal anesthesia in children? What dosage of procaine hydrochloride would you recommend for a child 2½ years of age? A child, aged 2½ years, is operated on under spinal anesthesia, and a gangrenous appendix with a localized peritonitis is found. Within twelve hours a temperature of 109.5 F. develops and nystagmus, convulsions and coma are noted in rapid succession, with a fatal outcome. No other physical signs suggestive of any other medical condition can be elicited. Would you consider this death the result of spinal anesthesia? Necropsy was not permitted. Kindly omit name.

M.D., New York.

ANSWER.—Spinal anesthesia has been advocated by Rocher (*Arch. de méd. d. enf.* **25**:705 [Dec.] 1922), who used a dose of from 20 to 80 mg. of procaine for operations on children whose ages ranged from 4 to 15 years, by Junkin (*Canadian M. A. J.* **28**:51 [Jan.] 1933), who used spinal anesthesia mainly for orthopedic operations on the lower extremities of children, and by Balacesco (*Bull. et mém. Soc. nat. de chir.* **57**:370 [March 14] 1931), who used spinal anesthesia in 826 cases in which the patients were children, 150 of whom were between the ages of 3½ years and 7 years. For those who were from 3½ to 5 years old, he used a dose of from 30 to 40 mg. of procaine. Salazar de Souza (*Arch. de méd. d. enf.* **35**:441 [Aug.] 1932) stated that in a series of operations on 540 children the usual dose of procaine he had used was from 40 to 50 mg.; the youngest child in his series was 32 days old, and twenty-five others were a year old or younger. Forgue and Basset (La rachianesthésie; sa valeur et sa place actuelle dans la pratique, Paris, Masson et Cie, 1930) do not advise the use of spinal anesthesia for children less than 15 or 16 years of age. Their questionnaires led them to believe that the majority of surgeons reject spinal anesthesia for operations on children.

The dose of procaine to be used for children should be 1 mg. for each pound of body weight, as in adults, debility decreasing the dose in relation to its severity. Death in the case described probably was not due to spinal anesthesia.

USE OF PARATHYROID IN ARTHRITIS

To the Editor:—1. I should like to know whether there are any clinical data to support the use of parathyroid extract-Collip in the treatment of chronic arthritis deformans. 2. Is there any new treatment for this arthritis?

K. A. ANDERSON, M.D., Charlotte, Mich.

ANSWER.—1. A consistent and uniformly demonstrable alteration in calcium metabolism in arthritis would seem to be a prerequisite for the rational use of parathyroid therapy.

In atrophic (infectious, proliferative, rheumatoid) arthritis there is atrophy of the bony epiphyses of the affected joints, at least in well advanced cases. In hypertrophic (senescent, degenerative, osteo-) arthritis there is marginal osteophyte formation and thickening of subchondral bone. These alterations in the calcium deposition of articular bone have led to a search for some general disturbance of calcium metabolism. Studies on the calcium content of blood and serum in cases of "chronic arthritis," of infective, hypertrophic and atrophic arthritis, of fibrositis and of sciatica have given variable results. A few have reported a decrease in blood calcium, both total and ionic (Price, 1923; Vine, 1924). A dozen or so investigators have found evidences of a moderately increased blood or serum calcium, a little more frequently in hypertrophic arthritis than in atrophic arthritis or in nonarticular rheumatism (Goldthwaite, Painter and Osgood, 1904; Lindemann, 1914; Mark, 1923; Weil and Guillaumin, 1923; Watchborn, 1925; Horowitz, 1926; Copp, 1930). Many others, among them Pemberton and Foster (1920), Nachlas (1927) and especially Buckley and Race, have concluded that the calcium content of blood and serum presents no marked deviations from the normal in the various types of arthritis. Nor did they find any significant disturbance in the relative proportions of diffusible and nondiffusible calcium. Studies in urinary calcium of arthritic patients are meager and do not permit conclusions to be drawn. No consistent alterations in phosphate metabolism or in the phosphatase content of the blood have been found (Buckley and Race).

Regardless of these observations, in progressive diseases of uncertain origin, such as the arthritides, one is tempted to note, empirically, the effect of the newer endocrine preparations. Grove and Vines administered parathyroid extract (*Brit. M. J.* **1**:791 [May 20] 1922). Snell and Hench studied the effect of parathyroid extract (Hanson)-N. N. R. given to a patient with chronic infectious arthritis (*Minnesota Med.* **13**:8, 1930). Weissenbach, Francon, Perles and Seidemann also administered parathyroid extract (*Bull. et mém. Soc. méd. d. hôp. de Paris* **54**:1843 [Dec.] 1930). None of these investigators apparently have pursued these lines of treatment to any extent.

During the past five years there has been an attempt on the part of several (Oppel, 1929; Leriche, Simon and Jung, 1931; Ballin and Morse, 1931; Funsten, 1933) to include "ankylosing polyarthritis" and spondylitis deformans in the syndrome of hyperparathyroidism. Parathyroidectomy (sometimes only unilateral) has been performed by them in a number of instances with reported benefits. It is admitted (Camp, 1932) that, owing to the marked decalcification in parathyroidism, the surfaces of the joints may collapse and thus resemble somewhat a destructive arthritis, but in true arthritis the chemical changes characteristic of parathyroidism are absent. Lièvre, the French authority, and Bauer, one of the chief American investigators of this disease, have both emphatically objected to such adulteration of the syndrome of hyperparathyroidism by the inclusion of arthritis. Bauer has stated that arthritis is not associated with or due to experimental or clinical hyperparathyroidism. To this Compere and Camp agree.

It is possible that the parathyroids and other parts of the endocrine-sympathetic system may be affected somewhat by the disease whose major manifestation is arthritis. One must conclude, however, that no proof so far exists that either atrophic

or hypertrophic arthritis is related to any primary deficiency or to any superabundance of parathyroid hormone, and that either the use of parathyroid extracts or resort to parathyroidectomy must be considered an experimental procedure entirely.

Suggested references:

Bauer, Walter: *J. Bone and Joint Surg.* **15**: 135 (Jan.) 1933.
Buckley, C. W., and Race, Joseph: First Research Report of the Devonshire Hospital, Buxton, Bristol, John Wright and Sons, Ltd., 1928.
Compere, E. L.: *J. Bone and Joint Surg.* **15**: 142 (Jan.) 1933.
Eaton, E. R., and Cocheu, L. F.: *J. Am. Inst. Homeop.* **25**: 485 (May) 1932.
Funsten, R. V.: *J. Bone and Joint Surg.* **15**: 112 (Jan.) 1933.
Lievre, J. A.: L'osteose parathyroidienne et les osteopathies chroniques, Paris, Masson et cie, 1932.

2. The "newest treatment" for chronic arthritis is fever therapy by means of diathermy, radiothermy or, more recently, the safer and simpler hot, air conditioned cabinets. Fever sessions are given once or twice weekly. The patient's temperature is raised fairly rapidly to from 104 to 105 F. Certain special precautions are necessary to avoid untoward reactions, but when these are taken the procedure seems relatively safe.

The results to date are variable. Some assert that about 35 per cent of patients subjected to a series of from three to six fever sessions note marked amelioration in, and at times complete cessation of, the activity of the disease. This method of treatment is too new for final evalution.

GLYCERIN AS SCLEROSIS INDUCING AGENT

To the Editor:—Can you give me any definite information as to the sclerotic action of glycerin, either pure or dilute, when injected into the tissues? Also, how strong a solution of glycerin can be used without discomfort to the patient? Glycerin and dextrose have been used for the injection of varicose veins. Just how much of the result is due to the dextrose and how much to the glycerin, I do not know. Also, can you advise me whether glycerin diluted say 50 per cent with water is more slowly absorbed when injected into the tissues than water? In other words, would an anesthetic dissolved in a solution of glycerin be absorbed more slowly and so give a more prolonged anesthesia than an aqueous solution? Lastly, can you advise me whether a solution of phenol in glycerin is less caustic if injected into the tissues than an aqueous solution of phenol? In other words, does glycerin act as an antidote to any degree to the local action of phenol?

W. A. HINCKLE, M.D., Peoria, Ill.

ANSWER.—The sclerosis inducing action of glycerin is due to its hygroscopic power. Hence it is present only when the fluid is injected in relatively high concentration. There is some discomfort when glycerin in any concentration is injected subcutaneously. As both dextrose and glycerin act by withdrawing water from cells, the share of each of them in producing the phlebitis will depend on their relative concentration. Glycerin delays the absorption of fluid when injected into the tissues. It will also delay the absorption of chemicals, and the more so the more soluble the substance is in glycerin than in the tissue fluids. A solution of phenol in glycerin is less caustic than an aqueous solution. To a certain extent, glycerin is an antidote to the local action of phenol; but it is less efficient as an antidote than alcohol in the treatment of phenol corrosion.

BLEEDING IN THE NEW-BORN

To the Editor:—A primipara was delivered at term, twenty hours after the beginning of labor. Ten hours before delivery she was given one-sixth grain (0.01 Gm.) of morphine and 1/130 grain (0.5 mg.) of scopolamine hydrobromide. The pains were rather weak and ineffective, and dilatation of the cervix was completed manually. The application of low forceps was preceded by an episiotomy. The fetus was in the left occipito-anterior position. The delivery was accomplished easily, under a short chloroform anesthesia. The progress of the mother has been uneventful. The condition of the baby immediately after birth was entirely satisfactory. Sixteen hours after birth the baby vomited a moderate amount of bright red blood. The baby was given 10 cc. of the father's blood intramuscularly. For four hours the baby's condition seemed satisfactory. Twenty hours after delivery the baby passed a large amount of clotted and fresh blood from the rectum and died immediately from the hemorrhage. The entire gastro-intestinal tract was removed and examined. No malformation was present and no pathologic changes other than a spongy condition of the mucosa of the stomach, ileum and colon were noted. No specific bleeding point could be found. The mother bled severely ten years ago following a tooth extraction, and five years ago following a tonsil operation; otherwise there is nothing of importance in the mother's history. Two minims (0.12 cc.) of solution of pituitary was given three times at intervals of twenty minutes after the cervix was completely dilated. Please omit name.

M.D., Colorado.

ANSWER.—The baby in this case most likely had melena neonatorum, or hemorrhage of the new-born, as evidenced by the vomiting of blood and the passage of old and fresh blood from the rectum. No mention is made of signs or symptoms of cerebral hemorrhage, which may occur as part of the syndrome of melena neonatorum or independently. Cerebral hemorrhage may, of course, take place after spontaneous labor as well as after instrumental deliveries and the use of solution of pituitary. Hence it is by no means always the fault of the attending physician. The cause of bleeding of the new-born is not definitely known. It is unfortunate that the bleeding time and coagulation time of this baby were not determined. The most effective remedy for bleeding of this type is transfusion of whole blood.

FIBROUS SCLEROSIS OF CORPORA CAVERNOSA OF PENIS

To the Editor:—I have under my care a case of fibrous sclerosis of the corpora cavernosa (multiple) of the penis. The patient is 47 years of age and has absolutely no disease condition, though he had a gonorrheal infection about twenty-five years ago. Physically he has no defect whatever. What would be your procedure in the handling of such a case, and also what is the usual outcome as to relief? If these questions are to be published, kindly withhold name.

M.D., Michigan.

ANSWER.—Fibrosis of the corpus cavernosum of the urethra or the penis may occur as a result of a thrombus associated with infection or as a sequel to severe gonorrhea, periurethral abscess, septic wounds or severe contusion of the penis.

The penis assumes a lopsided and distorted stance on erection. It bends toward the lesion, where fibrosis prevents vascular engorgement and frequently produces pain.

Early treatment consists in giving iodides and citrates by mouth and the local application of fomentations and gentle massage to reestablish circulation. In old-standing cases the prognosis is bad. Bromides may be given at night and the fibrous cords divided surgically.

Massage over a sound may be of some value with dilation of the urethra, which is usually narrowed.

When the fibrous bands are localized, excision with suture of the normal ends of the corpora cavernosa may be tried. The patient should not expect too much, as the penis will be shortened and it may take considerable time before erection becomes established.

DEPRESSION AND NARCISSISM

To the Editor:—A man, aged 28, of good appearance and with a university education, came to me with the complaint of morbid depression. He cannot get out of his mind the idea of the futility of things. He has perfect insight into his condition, but it seems that he cannot alter it. He states that the only time he is happy is when he is unconscious of self, only when sleeping or absorbed in reading. Otherwise his mind is in a continuous depressed state and he feels shy in talking to people. He cannot become interested in the commonplace things of everyday life. He states that he has been introspective and melancholy and withdrawn in himself all his life. He has no hallucinations, no warped ideas, except in the evil of the world and the drabness of existence, which he exaggerates in his own mind. He has no physical complaints, except a disability to concentrate well unless he deliberately tries to shake off his gloom, which he finds it hard to do. He is of normal weight. No defects were found on examination except a high degree of astigmatism in the left eye, which has been corrected as well as possible by a competent eye man. The sclera has a slight yellow tinge. The Wassermann reaction is negative. The blood count and the urine are normal. I have had him take phenobarbital when he feels terribly depressed. Also I have made him take saline laxatives. His main contention is that, because of his gloom and self consciousness and inability to become interested in people or things, he is a poor companion. His continuous apprehensive gloom keeps his mind in a blank as far as outside events go, and thus he is reluctant to inflict himself on others, as much as he would enjoy being "normal" and enjoying the companionship of others. He would like to become interested in others, but his self consciousness or self interest will not let him. He is afraid that others think him peculiar. Materially he is fairly well off and he has fair prospects if he can only snap himself out of it. The reason I write to you about this case is that I am interested in it. I am afraid that the patient may be contemplating suicide. I wonder if a psychoanalyst would do him good. Also where is a psychoanalyst near here to whom I could send him? I do not think that change of scene would help him, as he could not get away from his thoughts. Is this a case of psychasthenia?

M. J. FRANK, M.D., Beacon, N. Y.

ANSWER.—It is just as difficult to make a diagnosis in psychiatry without examing the patient personally as it is in other fields of medicine. The picture described is that of a chronic depression which seems to be a reaction to a strong withdrawal of interest from the external world, which leads to an incapacity of having any positive attachments outside the patient's own person. Such a self-centered attitude (narcissistic state of mind) often leads to inner conflicts, as it provokes self criticism and even feelings of guilt. In this case the depression apparently is not a reaction to any external event but a chronic state of mind which has persisted for a long time, and therefore it must be assumed that it is based on deep emotional conflicts. Only if the latter are influenced can a radical change

be expected. The therapy of choice, if this diagnosis is correct, is psychoanalysis.

Other psychotherapeutic approaches, such as persuasion or suggestion, would only touch the surface and can be employed in cases in which the morbid state of mind develops mainly as a reaction to an acute traumatic experience.

There are quite a series of competent psychoanalysts in New York, a list of which can be obtained from the New York Psychoanalytic Society, 324 West Eighty-Sixth Street, New York City.

RECURRENT UTERINE BLEEDING

To the Editor:—A white woman, aged 27, consulted me, March 24, 1934, because of uterine bleeding since the onset of her last period two months previously. The hemorrhage was moderate, with no clots. She had a similar attack of menorrhagia ten years ago, which cleared up readily with some liquid medication orally, and a period that lasted one week four years ago, which ended apparently with the help of fluidextract of ergot. The present attack failed to clear up under fractional doses of the same drug. Catamenia started at 13, the periods being irregular (every three to six weeks) and lasting four days. The flow is moderate and usually clots. The patient had scarlet fever, measles and chickenpox in childhood. She stated that she had never had intercourse and said that there never had been leukorrhea. Examination revealed no apparent abnormalities, except for hemorrhage from the uterine cavity. The blood pressure was 116 systolic, 72 diastolic. Hemoglobin was 74. The bleeding time was two and one-half minutes; the coagulation time five minutes. (At a later date the patient said that she bled profusely and for a long time from cuts of the fingers and hands. A brother had severe epistaxis in his youth.) The urine was normal. I made a diagnosis of functional menorrhagia and prescribed a remedy containing ergot for oral administration. In six days the bleeding had practically ceased. Sixteen days later the uterine hemorrhage recurred, was profuse in amount, and to date (two weeks after the onset) still persists to a slight degree in spite of medication and bed rest. I think that the patient is practically over this attack but I fear a recurrence. The patient is working and wishes to avoid recurrence of this disorder. Any suggestions that you can give will be appreciated. Please omit name.

M.D., Ohio.

ANSWER.—Although recurrent uterine bleeding in an unmarried woman of 27, without demonstrable evidence of pelvic disease, is usually ascribable to functional disturbance of the ovaries or other endocrine glands, diagnostic curettage is advisable because one sometimes encounters a submucous fibroid that is responsible for the bleeding. In the event that the curet reveals endometrial polyps, it is to be remembered that overgrowth of the endometrium is a frequent accompaniment of functional bleeding.

The care of functional uterine hemorrhage is often difficult and unsatisfactory. Many patients have a low basal metabolic rate. In these cases thyroid extract is almost specific.

Hypodermic injection of the pituitary-like luteinizing hormone has recently been used with success, but its value remains to be determined.

Roentgen treatment of the ovaries may be depended on to control the bleeding, but there remains the likelihood of permanent injury to the ovaries of younger women. The same would appear true of fractional intra-uterine applications of radium, although Keene is convinced of its therapeutic value and believes that radium in small amounts is harmless. Many gynecologists hold that supravaginal hysterectomy is preferable and is less radical because it spares the ovaries.

In selected cases of uterine retrodisplacement with associated functional bleeding, operative replacement of the uterus and ovaries is followed by a gradual return to regular menstruation, the result of reestablishment of normal ovarian function.

DANGERS OF BENZENE DICHLORIDE

To the Editor:—Is it injurious to breathe air containing small amounts of the insecticide paradichlorbenzene? I have an 18 months old baby. When the nursery door is open to allow ventilation, fumes of paradichlorbenzene, which has been liberally used to protect clothing from moths in adjacent closets, floats into the room and the odor is rather distinct. Will this injure the baby? Please omit name.

M.D., New York.

ANSWER.—Paradichlorbenzene (benzene dichloride, dichloricide) as used as a disinfectant is not known to produce harm to persons. Being a chlorinated hydrocarbon, it at once is to be associated with a number of related substances of well known toxicity. The fact that this crystalline substance becomes liquid at 53 C. and boils at 172 C. may be related to its apparent harmlessness, since these vapors are not freely produced at ordinary temperatures. While no equal significance should be attached to any genuine prospect of harm to this infant, it is felt that all possible pungent or disagreeable odors should be eliminated from all households. Offensive odors promote shallow breathing, nausea and mental irritability.

THROMBO-ANGIITIS OBLITERANS

To the Editor:—A man, aged 33, married in 1918, has one child 14 years old. He had the usual childhood diseases. Six months after the patient married he got wet in a rain and hail storm. Two days after the wetting he got stiff and stayed in bed for three months. In 1920 a mule bit him on the right forefinger, causing it to get sore. After enduring this condition for three months he had the finger amputated, and it took a month to get well. In 1924 the right little toe got sore and stayed that way for four or five months, after which he had the little toe amputated. The right thumb in 1929 got sore and stayed that way for three months. He had the thumb removed but healing did not occur and he had to have pieces removed five different times before the wound healed. In 1930 the left big toe had to be amputated, and now the right big toe is infected. The right big toe has been sore for a month and a half. The toe nail is off. The patient states that it just came off. All the nail bed has some necrotic tissue on it. It exudes some pus all the time. Around the necrosis the tissue is red and inflamed. The inflamed red tissue runs up into the foot a way. But it does not seem to be swollen to any degree. A thin ointment of balsam of peru in castor oil gives him the most relief. This is applied after a light treatment of x-rays and is the only treatment I have given him, thinking it might be ringworm of the nail; but it is not that. Examination of the blood is negative; the urine is negative for sugar. The blood pressure is 122 systolic, 80 diastolic. The patient has one bad tooth. He has been a little nervous for the past six months. He weighs 156 pounds (71 Kg.) and is 5 feet 10 inches (178 cm.) high. It looks like Buerger's disease, thrombo-angiitis obliterans. If it is, please give me the best treatment so I shall not have to cut off his toes and fingers.

HUGH DAVIS, M.D., Seguin, Texas.

ANSWER.—The successive involvement of the digits of the upper and lower extremities suggests that the diagnosis of thrombo-angiitis obliterans may be correct, but the information supplied in the history is insufficient to establish the diagnosis. If pulsation is absent in the vessels of the extremities and if there is a history of the excessive use of tobacco, the diagnosis of this disease would be more certain.

Treatment for thrombo-angiitis obliterans consists in intravenous injections of 5 per cent sodium chloride solution three times a week. The initial dose is 150 cc. and all subsequent injections 300 cc. Treatment is given on alternate days by the gravity method into a vein at the elbow. The solution must be prepared with freshly distilled water and immediately sterilized to avoid contamination. Additional details in regard to the treatment have been published in THE JOURNAL, June 5, 1926, page 1759, March 17, 1928, page 831, and May 31, 1930, page 1730.

If pain is severe, blocking of the peripheral nerves to produce anesthesia of the involved toe affords instant and complete relief. Details of this procedure can be found in the *Annals of Surgery* **98**:55 (July) 1933. Complete cessation of the use of tobacco is essential. Weight bearing on the affected foot should be avoided by the use of bed rest or crutches until the ulcer is healed. A boric acid wet dressing should be applied to the toe until the infection is controlled, and then bland ointments may be used.

DIAGNOSIS OF WHOOPING COUGH

To the Editor:—Is there any absolute method of diagnosing whooping cough before the cough reaches the spasmodic stage? Is the leukocyte count of more than suggestive value?

H. H. MUHLENBERG, M.D., Reading, Pa.

ANSWER.—The most nearly absolute method of diagnosing whooping cough before the whoop is to let the patient cough on a petri dish, containing a suitable medium, held 15 or 20 cm. from the mouth. No growth on the plate would not exclude the disease, but the development of colonies of the bacillus of whooping cough on the plate would justify a posisive diagnosis. This "cough plate" method should be used more than it is in the early diagnosis of whooping cough.

Leukocytosis with a relative increase in the small lymphocytes usually appears in the early part of the convulsive stage and is regarded as a valuable diagnostic sign.

DOSAGE OF EPHEDRINE

To the Editor:—A man, aged 36, has been complaining of fatigability, relieved by short periods of rest, for a long time. No organic abnormalities to account for this complaint have been discovered. I have prescribed for him ephedrine sulphate, one-eighth grain (0.008 Gm.), to be taken three times daily. Is any harm to be expected from the prolonged and continued use of the drug in the dosage prescribed? Kindly omit name.

M.D., Pennsylvania.

ANSWER.—No ill effects are likely to result from such dosage excepting that, as it is merely symptomatic therapy, if the condition is the result of excessive work this stimulation might make the final collapse still more disastrous.

PREGNANCY WITH ALBUMINURIA

To the Editor:—Kindly give me your opinion as to the advisability of a pregnancy in a woman, aged 30, who has been known to have albumin in the urine for the past ten years. During this time a number of tests have been made, at which times the renal function tests and blood chemistry have been normal. At the present time these tests are well within normal limits, the blood pressure being 124 systolic, 90 diastolic. This is apparently not a case of orthostatic albuminuria.

VERNE E. EASTMAN, M.D., Wausau, Wis.

ANSWER.—This woman may safely be advised to become pregnant, though she will have to be watched closely because not infrequently latent nephritis becomes apparent only during a pregnancy. The patient's urine should be examined both macroscopically and microscopically every two weeks during the first six months and every week thereafter. The blood pressure should likewise be checked with the same frequency and the patient's weight should be recorded at each visit. As a prophylactic measure, the patient should eliminate from her diet almost all table salt and condiments. Proteins may be eaten with impunity. Should the amount of albumin in the urine increase markedly and especially if casts or other evidence of kidney damage appear in the urine and the blood pressure rises, the pregnancy may have to be terminated.

ERUPTION OF TEETH

To the Editor:—In a child of 6, with all the deciduous teeth still firmly intact, the lower central incisors are beginning to erupt behind the deciduous. Is it necessary to extract the deciduous in order that the permanent may erupt properly? Kindly omit name.

M.D., New York City.

ANSWER.—The deciduous teeth should always be extracted immediately when the permanent teeth are detected erupting behind them.

INJECTION METHOD IN HYDROCELE

To the Editor:—In THE JOURNAL, July 28, page 281, a subscriber writes to ask if the use of sodium morrhuate is practical in the treatment of hydroceles. It is unfortunate that the inquirer was not referred to the comprehensive article by Kilbourne and Murray on the "Injection Treatment of Hydrocele" published in *California and Western Medicine* (**37**: 3 [July] 1932). After extensive experimental investigations they employed a solution of quinine and urethane with excellent results. Kilbourne and Murray do not employ sodium morrhuate, as the solution is nonbactericidal, although Floyd and Pittman (*Georgia M. A. J.* **23**: 63 [Feb.] 1934; abstr. THE JOURNAL, May 12, p. 1641) have employed sodium morrhuate with the addition of a bactericidal drug with excellent results. Kilbourne and Murray found the use of quinine and urea solution, as recommended in your reply to the inquirer, unpractical on account of the pain produced following the injection. For the last eighteen months, I and at my suggestion two of my colleagues, Dr. Charles R. Marquardt and Dr. James C. Sargent of Milwaukee, have employed the technic of Kilbourne and Murray in over thirty hydroceles with excellent results. It is our impression that the future will see a revival of this form of treatment of hydrocele and, with the use of the newer sclerosing solutions, we feel that the results will be entirely satisfactory. I was greatly pleased to see the fine answer given to the inquiry, as previously mentioned, in THE JOURNAL.

GEORGE H. EWELL, M.D., Madison, Wis.

CLIMATE AND SINUSITIS

To the Editor:—In an answer to a correspondent concerning residence for a case of sinusitis, I find San Diego recommended. I must disagree with this advice. Myself a sufferer for many years, I went there and found it unsatisfactory and was strongly advised by a prominent medical man not to remain. However, I do agree that Arizona is the best climate we have in this country. Tucson and the vicinity is all right. One must not get the idea that it is summer in winter in any part of this state. One thing that must be impressed on all these sufferers is that one winter or one summer will not suffice but, like tuberculosis, the disease requires a long if not permanent residence to assure or even promise a cure. I spent three winters of five months each north of Phoenix and had no severe attack, but on the way home on the last visit developed one on the train. Florida also is not a good place. I had two severe attacks there; i. e., on the Gulf Coast.

HENRY WALLACE, M.D., New York.

KALA AZAR IN TEXAS

To the Editor:—In Queries and Minor Notes in THE JOURNAL, September 8, a Texas physician inquires as to the possibility or probability of kala azar occurring in Texas. The answer made to the query is correct, but probably the correspondent should be referred to the paper by Katharine Dodd and Edna H. Tompkins on Histoplasmosis, which appeared in the *American Journal of Tropical Medicine* **14**: 127 (March) 1934. Histoplasmosis is apparently similar to kala azar, and sporadic cases have been observed in Minnesota by Watson and in Tennessee according to the quoted reference.

H. A. REIMANN, M.D., Minneapolis.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Oral (Group A and Group B candidates).* San Antonio, Texas, Nov. 13-16. Sec., Dr. C. Guy Lane, 416 Marlborough St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Written (Group B candidates).* The examination will be held in various cities of the United States and Canada, Nov. 3. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: San Antonio, Texas, Nov. 12; Philadelphia, June 10. Sec., Dr. William H. Wilder, 122 S. Michigan Blvd., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: San Antonio, Texas, Nov. 16. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

ARKANSAS: *Basic Science.* Little Rock, Nov. 5. Sec., Mr. Louis E. Gebauer, 701 Main St., Little Rock. *Regular.* Little Rock, Nov. 12. Sec., Dr. A. S. Buchanan, Prescott. *Eclectic.* Little Rock, Nov. 13. Sec., Dr. L. L. Marshall, 820 W. 14th St., Little Rock.

CALIFORNIA: Sacramento, Oct. 15-18. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

CONNECTICUT: *Regular.* Hartford, Nov. 13-14. *Endorsement.* Hartford, Nov. 27. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden. *Homeopathic.* New Haven, Nov. 13. Sec., Dr. Edwin C. M. Hall, 82 Grand Ave., New Haven.

FLORIDA: Tampa, Nov. 12-13. Sec., Dr. William M. Rowlett, Box 786, Tampa.

ILLINOIS: Chicago, Oct. 16-18. Superintendent of Registration, Department of Registration and Education, Mr. Eugene R. Schwartz, Springfield.

MAINE: Portland, Nov. 13-14. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton Jr., 192 State St., Portland.

MASSACHUSETTS: Boston, Nov. 13-15. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 144 State House, Boston.

MINNESOTA: Minneapolis, Oct. 16-18. Sec., Dr. E. J. Engberg, 350 St. Peter St., St. Paul.

MISSOURI: Kansas City, Oct. 24. State Health Commissioner, Dr. E. T. McGaugh, State Capitol Bldg., Jefferson City.

NEBRASKA: Lincoln, Nov. 22-23. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEVADA: Carson City, Nov. 5. Sec., Dr. Edward E. Hamer, Carson City.

NEW JERSEY: Trenton, Oct. 16-17. Sec., Dr. James J. McGuire, 28 W. State St., Trenton.

OREGON: *Basic Science.* Portland, Nov. 17. Sec., Mr. Charles D. Byrne, University of Oregon, Eugene.

SOUTH CAROLINA: Columbia, Nov. 13. Sec., Dr. A. Earle Boozer, 505 Saluda Ave., Columbia.

WEST VIRGINIA: Martinsburg, Oct. 29-31. State Health Commissioner, Dr. Arthur E. McClue, Charleston.

Nebraska June Examination

Mrs. Clark Perkins, director, Bureau of Examining Boards, reports the written examination held in Omaha, June 8-9, 1934. The examination covered 10 subjects and included 91 questions. An average of 75 per cent was required to pass. Eighty-three candidates were examined, all of whom passed. One physician was licensed by reciprocity. The following schools were represented:

PASSED	Year Grad.	Number Passed
School of Medicine of the Division of the Biological Sciences	(1934)	1
Creighton University School of Medicine	(1933, 7), (1934, 16)	23
University of Nebraska College of Medicine	(1932), (1933, 4), (1934, 54)	59

LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
University of Michigan Medical School	(1929)	Michigan

One physician was licensed at a special examination held February 16. The following school was represented:

PASSED	Year Grad.
Northwestern University Medical School	(1933)

Two physicians were licensed by endorsement from February 24 to March 16. The following schools were represented.

LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical Evangelists	(1933)	N. B. M. Ex.
University of Oregon Medical School	(1930)	N. B. M. Ex.

Oklahoma June Reciprocity Report

Dr. J. M. Byrum, secretary, Board of Medical Examiners, reports 5 physicians licensed by reciprocity at the meeting held in Oklahoma City, June 6-7, 1934. The following schools were represented.

LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Howard University College of Medicine	(1933)	Kansas
State University of Iowa College of Medicine	(1929)	Iowa
University of Louisville School of Medicine	(1927)	Indiana
University of Nebraska College of Medicine	(1932)	Kansas
New York University, University and Bellevue Hospital Medical College	(1913)	New York

Book Notices

Applied Physiology. By Samson Wright, M.D., F.R.C.P., John Astor Professor of Physiology, University of London. Fifth edition. Cloth. Price, $5.50. Pp. 604, with 195 illustrations. New York & London: Oxford University Press, 1934.

This textbook has received a well deserved popularity among practitioners of medicine. As Swale Vincent stated, "the day has gone by when a practitioner, however modest, can afford to declare that he has forgotten his physiology." This book is not a didactic presentation of physiology. The author's aim in preparing the original edition was to integrate physiology with clinical medicine. Special stress was laid on those functions which are commonly deranged in disease. Because of this and the skill and clarity with which it has been done, the book has been invaluable to students in medicine beyond their first two years and to those engaged in the practice of medicine. One would have great difficulty digging out facts and theories that are presented here in such a well correlated manner. The style and form of presentation make the book most engaging. It is simple and concise, yet almost every important aspect of applied physiology is discussed. In the various editions the author has made thorough revision to keep abreast of current developments in physiology and advances in clinical medicine. This edition is no exception. The most extensive revision has been in the physiology of the nervous, cardiovascular and endocrine systems. Among some of the features of the new edition that should interest practitioners are epinephrine secretion and blood pressure regulation; anatomy and physiology of the carotid sinus and body; mechanism of ischemic pain and its relation to angina pectoris; the pleural, pericardial and peritoneal sensibility after Capps and Morley; muscle tone and regulation of posture; the pituitary body, with an account of the follicle stimulating and luteinizing factors of anterior pituitary-like principle and their association with the menstrual function; dietetic and chemical control of erythropoiesis and the anemias; electrocardiographic records of direct stimulation of the human ventricle and necessity for reinterpretation of abnormal electrocardiograms in man; sympathectomy for vascular disorders in man; tissue oxidations, with concise accounts of cytochrome, Warburg's respiratory enzyme, indophenol oxidase and dehydrogenases, and many other subjects that have developed since their formal medical education. Bibliographic references enhance the value of this material and are well selected. An illustration of the author's desire to meet the needs of all classes of readers is the unique idea of printing in italics in the table of contents those parts of the subject which are wholly or mainly of clinical interest. This has been done for the student who has not had a background in clinical medicine and who might be preparing himself for an examination in didactic physiology. The feature has subtle pedagogic possibilities. The scholarly desire of the author to present facts has caused him to cull both the clinical and scientific American, French and English journals for current investigations. In spite of this new material and the addition of seventy new illustrations, the author has retained virtually the size of former editions. This has been possible only by critical editing and judicious deletions. This book should be the property of every medical student and practitioner. It was written for the specific needs of both, with a zealous desire to add to their knowledge and understanding of the physiology of disease. A book of this type is a distinct contribution to the progress of medicine.

Ocular Dioptrics and Lenses. By G. F. Alexander, M.B., C.M., Registrar, Ophthalmological Hospital of St. John, Jerusalem. Cloth. Price, $4.75. Pp. 216, with 62 illustrations. Baltimore: William Wood & Company, 1934.

Here is a curious admixture of complex mathematical optics and sound refractive common sense. The author admits that the origin of the book lay in an endeavor to write an article on the why and wherefore of the change in the refractive strength of an ophthalmic lens on moving it forward from the eye. The elucidation of the subject led him far afield from the original object and there resulted page upon page of mathematical formulas that are beyond the comprehension of the average ophthalmologist. The phraseology employed is none too happy, as may be exemplified in the second sentence of the book, which occupies twenty-five lines and contains forty-one commas, one colon, one semicolon, five parentheses, four i. e.'s and one final period. After ninety-six pages of formulas dealing with the laws of refraction and the optical constants of the eye, he proceeds to discuss the mechanism of accommodation. In this can be found many statements that are not universally accepted as yet; for example, "the hyaloid membrane surrounding the vitreous is highly elastic" and "the space between the zonule, the hyaloid, and the equator of the lens . . . is air tight." The ophthalmic physiologist will find many points in this chapter for the basis of delightful argumentation. From here on, the greater part of the book is devoted to various phases of clinical refraction and contains evidence of long, sound clinical experience. There is no bibliography but there is a fairly good index. The only illustrations are mathematical designs. The bookmaking, proofreading and printing are good. This is not a book for the beginner in ophthalmology but it can be read to advantage by one desiring further information in that ophthalmic essential, refraction.

Surgical Anatomy and Physiology. By Norman C. Lake, M.D., M.S., D.Sc., Senior Surgeon, Charing Cross Hospital, and C. Jennings Marshall, M.D., M.S., F.R.C.S., Surgeon, Charing Cross Hospital. Cloth. Price, 30/-. Pp. 888, with 238 illustrations. London: H. K. Lewis & Co., Ltd., 1934.

The authors of this book have undertaken a tremendous task in attempting to present a treatise on surgical anatomy and physiology in one volume. However, they make no pretense at comprehensiveness on the physiologic aspect of the subjects covered but merely include an appreciable amount of physiology to round out the subject. One of the refreshing features of the book is the originality both in organization and in manner of presentation. The illustrations are adequate to clarify abstract descriptive material and the majority of them are original. The discussions are well balanced and show careful editing. In a book of this type there is always a danger of undue compression of certain descriptive detail at the expense of the uninformed reader. There is a surprising lack of it here. The application of anatomy to operative and pathologic surgery is considered under two headings, general and regional. For example, the alimentary canal is considered generally in the first section of the book with respect to development, supports, intestinal movements, radiography and bowel contents. Under the section of applied regional anatomy the various divisions of the alimentary canal are considered in detail, with ample treatment of physiology and pathology. As a concise and comprehensive treatment of surgical anatomy, this is an excellent textbook. It will be especially useful for the student and for those in their formative years of training, as an adjunct to more exhaustive textbooks.

Genealogy of Sex: Sex in Its Myriad Forms, From the One-Celled Animal to the Human Being. By Curt Thesing, M.D. Translated from the German by Eden and Cedar Paul. Introduction to the American edition by Smith Ely Jelliffe, M.D., Consulting Neurologist, Manhattan State Hospital and Kings Park State Hospital. Cloth. Price, $5. Pp. 286, with 73 illustrations. New York: Emerson Books, Inc., 1934.

Dr. Thesing is a physician, zoologist and scientific writer of repute in Germany, author of numerous biologic works of both general and technical character. He has been director of the scientific division of the great publishing house of Teubner in Leipzig and a co-founder of the widely known periodical *Die Naturwissenschaften*. These qualifications peculiarly fit him to write the present work, which is a panorama of the development and diversifications of the reproductive function in the animal world. It is not a systematic unfolding of the successive stages of evolution traced up the ladder of life from ameba to man but rather the story of the many interesting and curious developments of sexual processes and mating behavior that have been evolved in various groups of animals from the lowest to the highest and from the simple to the complex. Some of these widely divergent and curious accomplishments of the sexual instinct serve to illumine the obscurer aspects of sexual behavior and abnormalities of sexual development in man. Among the topics discussed in the light of the broader comparative biologic consideration of sex among animals are the origin of sex, the sex cells and the sexual instincts, hermaphroditism and intersexes; the relation of environmental factors to sexual develop-

ment; the suppression of sexual development by parasitism; parasitic males in the marine worm Bonellia, in Myzostoma, a degenerate annelid living on crinoids, and in certain crustacea; the transformation of old hens into functioning cocks by glandular abnormalities; sexual dimorphism in sex cells and in adults; the phenomenon of dwarf males, structurally defective males, the diminution of the male ratio, and the ultimate extinction of the male sex, as in some rotifers in which no males have ever been found; the pairing of hermaphroditic animals such as snails; the cannibalistic behavior of the female spider, which eats the male, even before his purpose is accomplished; the influence of the sexual impulse on migration of fishes and birds; the relation of the lunar cycle to the spawning of the palolo worm of the coral reefs and of many other marine animals; the rhythms in man and woman of the ebb and flow of the sexual hormones; the strange behavior of the praying mantis, crayfishes, cuttle fishes, toads and Australian aborigines in copulation; the lures and stimuli favoring reproduction found among insects, birds, mammals, and aborigines such as color, odor, taste, tactile stimuli and fantastic behavior. The closing chapter is a review of the sexual habits of primitive peoples, largely drawn from Malinowski's researches in New Guinea.

The book is an interesting compilation of sex lore which should make even the calloused exclaim "Ain't nature wonderful."

Studien über die Permeabilität der Retina. Von Henry Key, Med. Lic. Inaugural Dissertation zur Erlangung der medizinischen Doktorwürde. Upsala. Sonderabdruck aus Acta Societatis Medicorum Suecanae, Band LVIII, 1932. Paper. Pp. 82, with 29 illustrations. Stockholm: Isaac Marcus Boktryckeri-Aktiebolag, 1932.

This represents an extensive experimental work on the eyes of animals and man. The material was as fresh as possible in the human cases, as early as an hour after death. An elaborate technic was worked out for the study of the permeability of the choroid and retina as well as for the retina alone. The study was made first on the permeability of the tissues for water and for various alkaline and acid solutions as well as dyes. The permeability from within out, i. e., from retina toward sclera, as well as from without in, was estimated. The influence of various drugs was also studied. The author found that sodium iodide solution 0.04 per cent increased, atropine sulphate 1:50,000 reduced, and pilocarpine chloride and, even more, physostigmine salicylate increased the permeability of the retina for water. The significance of these experiments for the pathology of the eye may be mentioned. If in a detached retina the osmotic pressure of the subretinal fluid is greater than that of the vitreous, there may be some argument as to whether the fluid will pass from it through the retina. The fact that the retina is permeable to water in both directions will have an influence on the fluid exchange of the eyes. The new knowledge of the influence of drugs on retinal permeability may alter some ideas held about the actions of drugs in cases of glaucoma. The article contains sixty-five tables, thirteen illustrations and a comprehensive bibliography. The work is of special interest to the physiologist and the research worker in ophthalmology.

Diseases of the Eye. By Sir John Herbert Parsons, C.B.E., D.Sc., F.R.C.S., Consulting Ophthalmic Surgeon, University College Hospital, London. Seventh edition. Cloth. Price, $5.50. Pp. 695, with 374 illustrations. New York: Macmillan Company, 1934.

The last edition of this textbook appeared in 1930 and was reprinted in 1931. A review appeared in THE JOURNAL, March 22, 1930, page 891. That there is a demand for the book is evidenced by the necessity of a new edition after only four years, especially during these times of depression. The new edition contains sixteen more pages than its predecessor, the increment lying in additions to the existing text. No new chapters and no new illustrations have been added. The second chapter, on physiology, has been more or less rewritten, with especial attention paid to the balance of intra-ocular pressure and to the formation of the aqueous. The work of Duke-Elder is reflected in this. The remaining additions to the text have been more in the form of slight amplifications, such as the addition of about half a paragraph on the modern surgical treatment of detachment of the retina (with mental reservations as to results). The author is seemingly not thoroughly imbued with the etiologic import of tuberculosis in diseases of the retina and uvea, although he begrudgingly mentions the possibility. The orthoptic treatment of squint, which is now attracting so much attention, is given but brief mention, but the pharmacopeia at the end of the book has been elaborated and rewritten and now is in a most useful form. Another appendix contains all the necessary information relative to the ocular requirements for admission to the various civil and military services. The opinions expressed in the review of 1930 still hold and again it must be emphasized that here is a moderate sized textbook for students and practitioners that is eminently worth while.

That Heart of Yours. By S. Calvin Smith, M.D., Sc.D. Cloth. Price, $2. Pp. 212, with 6 illustrations. Philadelphia & London: J. B. Lippincott Company, 1934.

The increasing number of persons dying yearly from heart disease caused the medical profession to focus its attention on prevention. In an effort to reduce the morbidity and mortality, facts concerning the necessity of rest, prevention of infection and avoidance of strain were stressed to the public. While this type of education played an important part in the reduction of active heart disease, it raised a feeling of apprehension in some individuals. The profession has appreciated this. In a recent book the English cardiologist Sir Thomas Lewis devotes a section to the manner in which the physician should speak to his cardiac patient about his illness. Truth is the first essential, but it should be accompanied by encouragement and optimism. That, in substance, is the keynote of this book. The author has attempted to amplify and supplement the information the physician usually gives his heart patient. The book is clearly written in simple, understandable language. The optimism generated in the text is a product of modern study and observation. It is convincing as well as cheerful. Persons who have heart trouble, imagined or real, will benefit greatly by this book.

Tuberculosis in the Child and the Adult: A Discussion of Pathologic Anatomy, Pathologic Physiology, Immunology, Diagnosis and Treatment. By Francis Marion Pottenger, A.M., M.D., LL.D., Clinical Professor of Medicine (Department of Chest) University of Southern California, the School of Medicine. Cloth. Price, $8.50. Pp. 611, with 85 illustrations. St. Louis: C. V. Mosby Company, 1934.

This book is recommended to students and practitioners. In it is assembled all present information on the subject of tuberculosis as it affects the child and adult. It is intelligently written, compact and liberally illustrated with roentgenograms and instructive diagrams. Topics of unusual interest are accompanied by references to the American and foreign literature. Much stress throughout the volume is placed on the allergic manifestations of tuberculosis, and the chapters on hypersensitivity, allergy and immunity are developed in great detail. Another hobby of the author's, "The Visceral Neurology of Tuberculosis," unfolds itself at length in an illustrated discussion of the part played by the vegetative nervous system in the production of signs and symptoms commonly seen in this disease. This exposition, showing how various organs of the body are reflexly affected by the action of toxins on the sympathetic nervous system, helps one to understand the pathologic physiology of pulmonary tuberculosis. The chapters devoted to childhood tuberculosis leave little unsaid on this important subject, especially as it concerns the relationship to adult tuberculosis. The pathology of tubercle, the evaluation of symptoms, signs and laboratory tests in diagnosis, and the various methods of choice in the treatment of different stages of the disease are discussed from every phase of present-day knowledge. This new textbook, while prejudiced along certain lines, reveals the author's thorough familiarity with his subject and is a worthy addition to any medical library.

Facies dolorosa; das schmerzensreiche Antlitz. Von Dr. H. Killian. Cloth. Price, 19.60 marks. Pp. 88, with 64 illustrations. Leipzig: Georg Thieme, 1934.

This is a collection of illustrations showing the facial appearances of people with various types of diseases. In his accompanying case histories the author classifies these facial appearances according to the associated mental processes. There is also an introductory sketch indicating the significance to be attached to studies of this type.

Medicolegal

Malpractice: Solution of Formaldehyde Mistakenly Used for Procaine Hydrochloride.—Prindle, a licensed physician, undertook in the Church of St. Matthew Mills Memorial Hospital to remove a cyst from the exterior wall of the plaintiff's abdomen. He directed a nurse, employed by the hospital, to prepare a procaine hydrochloride solution for use as a local anesthetic. Because of admitted negligence the nurse prepared a solution of formaldehyde, which the physician, believing it to be procaine, injected in the plaintiff's abdomen. He immediately noticed a violent reaction on the part of the patient, discovered the mistake, injected procaine and removed by incision, as far as possible, the area affected by the solution of formaldehyde. For the resulting damage the plaintiff sued the physician, the nurse and the hospital. The jury returned a verdict in favor of the plaintiff against the hospital for $10,000 and against the nurse and physician for "$ No dollars." The trial judge refused to direct the jury to reframe the verdict, and later, on motion of the hospital, entered a judgment in favor of the hospital notwithstanding the verdict of the jury, on the theory that the hospital was a charitable institution, had used due care in selection of its servants and was not, therefore, liable for the torts perpetrated by its servants on recipients of its benefits. The plaintiff then appealed to the Supreme Court of California.

The Supreme Court held that the trial court was without power to enter a judgment in favor of the hospital notwithstanding the verdict of the jury, inasmuch as the hospital had failed to move for a directed verdict at the close of the evidence. But because in the opinion of the court the verdict of the jury was too incomprehensible to support a judgment in favor of any party to the action, the Supreme Court ordered a new trial of the cause.

There was not a scintilla of evidence, the Supreme Court concluded, to support a verdict in favor of the nurse. She interposed no defense and made no denial to the allegations of the complaint that she was negligent. On the witness stand she admitted that she had neglected to read the label of the bottle containing solution of formaldehyde, which she used instead of procaine. It would be an anomaly, said the court, to hold the nurse to be free of negligence and to hold the hospital, whose agent she was, guilty of negligence.

In view of the retrial of the cause, the Supreme Court refused to pass on the liability of the physician under the evidence adduced at the trial.

As noted, the case was remanded to the trial court for a retrial of the cause.—*Hallinan v. Prindle (Calif.), 29 P. (2d) 202.*

Dental Practice Acts: Revocation of License for Self-Laudatory Advertising.—The defendant, Waller, a licensed dentist, distributed circulars in which he claimed to be the only dentist in the Panhandle of Texas "doing Professional Denture work." The district court, Potter county, Texas, revoked Waller's license under a provision of the Texas dental practice act authorizing the revocation of a license if the licentiate was guilty of "any deception or misrepresentation for the purpose of soliciting or obtaining business." Waller appealed to the court of civil appeals of Texas, Amarillo.

The judgment canceling Waller's license, said the court of civil appeals, rested on an accusation, charge, and evidence that may not be made the legal basis for depriving a citizen of Texas of the right to labor and enjoy the fruits of that labor in his chosen profession, even though all that was charged and proved against him be true. It was not claimed that any act of Waller in any way affected the health, safety, morals, comfort, or general welfare of the public, or any of its members; nor that Waller was not able to do proficiently and expertly everything that he said he could do; nor that anybody was misled or deceived to his injury, or could have been, by the statements made by Waller. Those statements, continued the court, amounted to no more than a claim that he was better equipped than his professional brethren to do a certain class of dental work and that he was doing such work better than they. Being able to do precisely the character of work he advertised, questioned the court, who could be injured by the representation that he could do it better than others, unless it was his competitors who lost business to him by reason of his statements? If only his competitors would be thus affected, no contention could be made that legislative authority existed under the police power to cancel a professional license on any such narrow and selfish ground. The Texas court found itself in accord with the views expressed by the Supreme Court of Colorado in *Chenoweth* v. *State Board of Medical Examiners,* 57 Colo. 74, 141 P. 132, in which the Colorado court held unconstitutional a provision of the medical practice act of Colorado authorizing the revocation of a physician's license for "causing the publication and circulation of an advertisement relative to any disease of sexual organs," on the ground that the provision had no reasonable relation to the public health and comfort, or to the safety or welfare of society and hence could not be justified under the exercise of police power.

The provision of the dental practice act under consideration, as interpreted by the lower court, said the court of civil appeals, would permit the revocation of a license because of a simple misrepresentation to obtain business, even though such misrepresentation amounted to no more than "puffing one's wares" or "big talk," and even though such representations in no way affected adversely the health, morals, safety, or welfare of the public. The right to practice a profession has been called a property right, but it is more, continued the court. To obtain a license and proficiency requires the expenditure of money and years of preparation. Such right is the capital stock of its possessor from which dividends are expected sufficient to protect him from the infirmity of old age and to provide his family with the comforts of life. To cancel a professional license is to take away the entire capital stock of its possessor and to leave him in most instances the equivalent of a bankrupt. No legislature should be allowed to prescribe the infliction of such a penalty except by a law clear and unmistakable in its terms and which respects the interests of society and its members.

Because, concluded the court, no valid legal basis existed, under the accusatory portions of the complaint, for the judgment rendered by the trial court, that judgement was reversed and the cause remanded.—*Waller v. State (Texas), 68 S. W. (2d) 601.*

Society Proceedings

COMING MEETINGS

Academy of Physical Medicine, New York, Oct. 30-31. Dr. Arthur H. Ring, 163 Hillside Avenue, Arlington, Mass., Secretary.

American College of Surgeons, Boston, Oct. 15-19. Dr. Franklin H. Martin, 40 East Erie Street, Chicago, Director-General.

American Society of Tropical Medicine, San Antonio, Texas, November 14-16. Dr. Henry E. Meleney, Vanderbilt University School of Medicine, Nashville, Tenn., Secretary.

Associated Anesthetists of the United States and Canada, Boston, Oct. 15-19. Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary.

Central Association of Obstetricians and Gynecologists, New Orleans, Nov. 1-3. Dr. Ralph A. Reis, 104 South Michigan Boulevard, Chicago, Secretary.

Central Society for Clinical Research, Chicago, Nov. 2-3. Dr. Lawrence D. Thompson, 3720 Washington Boulevard, St. Louis, Secretary.

Inter-State Postgraduate Medical Association of North America, Philadelphia, November 5-9. Dr. W. B. Peck, 27 East Stephenson Street, Freeport, Ill., Managing-Director.

Omaha Mid-West Clinical Society, Omaha, Oct. 29-Nov. 2. Dr. Joseph D. McCarthy, 107 South 17th Street, Omaha, Secretary.

Pacific Coast Society of Obstetrics and Gynecology, Oakland and Del Monte, Calif., November 21-23. Dr. Clarence A. De Puy, 230 Grand Avenue, Oakland, Secretary.

Radiological Society of North America, Memphis, Tenn., December 3-7. Dr. Donald S. Childs, 607 Medical Arts Building, Syracuse, N. Y., Secretary.

Southern Medical Association, San Antonio, Texas, November 13-16. Mr. C. P. Loranz, Empire Building, Birmingham, Ala., Secretary.

Tri-States Medical Society of Texas, Louisiana and Arkansas, Shreveport, La., October 16-17. Dr. George P. Quinn, 427 Milam Street, Shreveport, Secretary.

Western Surgical Association, St. Louis, December 7-8. Dr. Albert H. Montgomery, 122 South Michigan Boulevard, Chicago, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American J. Digestive Diseases and Nutrition, Chicago

1: 351-424 (Aug.) 1934

Commensal and Parasitic Endamoeba Histolytica Infestation: Parasitogenesis of Endamoeba Histolytica. L. Arnold, Chicago.—p. 351.

Treatment of Patients with Foreign Bodies in Esophagus or Stomach. P. P. Vinson and K. Deissler, Rochester, Minn.—p. 357.

*New Aspect of Migraine and Certain Related Conditions: Discussion of Its Therapeutic Possibilities. E. Földes, New York.—p. 359.

Further Proof that the Gallbladder Evacuates Via the Cystic Duct. W. L. Voegtlin, H. Greengard and A. C. Ivy, Chicago.—p. 371.

*Studies on Gastric Motility Under Low Oxygen Pressures. E. J. Van Liere, Morgantown, W. Va.—p. 373.

Study of Absorption of Dextrose and Water from Chronic Isolated Loops of Colon. P. H. Moore and G. E. Burget, Portland, Ore.—p. 376.

Some Observations on Food Allergy. W. T. Vaughan, Richmond, Va.—p. 384.

Revised "Elimination Diets" for Diagnosis and Treatment of Food Allergy. A. H. Rowe, Oakland, Calif.—p. 387.

Management of Chronic Spastic Constipation. H. G. Beck, Baltimore.—p. 393.

Treatment of Pernicious Anemia. S. M. Goldhamer and F. H. Bethell, Ann Arbor, Mich.—p. 398.

Uncommon Tumors of the Large Intestine. J. A. Bargen and C. F. Dixon, Rochester, Minn.—p. 400.

Some Principles in Treatment of Septic Conditions Following Abdominal Diseases. J. N. Coombs, Philadelphia.—p. 404.

Treatment of Hemorrhoids. J. M. Lynch and V. Hurley, New York.—p. 409.

*Perirectal Streptococcic Cellulitis: Report of Case. H. T. Hayes, Houston, Texas.—p. 413.

Migraine and Related Conditions.—Földes points out that visual disturbances and various nervous and psychic manifestations are not uncommon occurrences in attacks of migraine. Aside from migraine, however, paroxysms of headache, vomiting and visual disturbances are seen in other conditions, in particular in that form of uremia which has been variously termed the acute, convulsive or eclamptic uremia. This occurs in such forms of glomerulonephritis or nephrosis as are associated with visible retention of liquids; in other words, convulsive uremia occurs in the edematous forms of kidney disease. Therefore, the disturbances that regularly precede uremic convulsions or are manifested instead of the latter are caused by the same factors to which the convulsions are due. As to the pathogenesis of "convulsive uremia," there seems little doubt that it is the increased intracranial pressure caused by accumulation of fluids in the tissue of the brain and within the cavities of the brain which leads to convulsions. The theory of the pathogenesis of migraine presented is that attacks may occur simultaneously with changes in the weather. There is retention of liquid in the organism in the case of decreasing barometric pressure and this retention may lead to the development of a retentional type of attack; or the return of the barometric pressure to normal, following its drop, may lead to a release of previously retained liquid and consequently to a mobilizational type of migraine. The so-called common cold may be associated with attacks in sufferers from migraine, owing no doubt to the fact that almost all infectious diseases bring about retentions in the organism. The author applies his theory of the pathogenesis of migraine to its therapy; that is, the prevention of accumulations of liquid in the organism and the elimination of liquid previously accumulated. Prevention of water retention and elimination of water already accumulated should have a curative effect in the retentional type of migraine. In the mobilization type, due to local accumulation of liquid in the brain which was previously retained in other parts of the body and then mobilized, prevention and elimination of retentions should similarly have a curative effect. The main principle on which such therapy should be constructed is that of the utilization of food substances whose action is antiretentional and the restriction of food substances the action of which is retentional; that is, an antiretentional diet. Good results have been obtained in thirty cases of migraine with the antiretentional diet.

Gastric Motility Under Low Oxygen Pressures.—The experimental work of Van Liere on dogs emphasizes the importance of prescribing easily digestible food and food that will leave the stomach quickly in cases of disease associated with anoxemia. Animals subjected to what may be termed moderate grades of anoxemia showed a delay of several hours in the emptying time of their stomachs.

Perirectal Streptococcic Cellulitis.—Hayes reports a case of perirectal streptococcic cellulitis in which the streptococci were carried into the perirectal tissues during an operation for hemorrhoids, either by trauma or by the needle. At the suggestion of a roentgenologist, treatment with x-rays was begun. The temperature dropped 2.4 degrees F. within twelve hours after the first roentgen treatment. In less than eighteen hours there was a profuse drainage of grayish white, serosanguineous material from the wounds on both sides of the anus. Subjectively the patient felt much better. On the next day and the day following she was given further roentgen treatments. During this time the wound drained profusely and the areas round the rectum softened rapidly. The dosage of x-rays was spark gap, 5 inches; milliamperes, 3; no filters; distance, 10 inches; time, three minutes. On the eve of the third day the patient's temperature became normal and did not go above 99 F. after this time. Subjectively she was well; the hardness about the rectum had disappeared entirely. The sinuses gradually dried up; there was no communication with the rectum, no resultant fistulas and only one small, draining sinus when she left the hospital. A culture of the discharge from the wound, ten days after the cessation of the roentgen treatments, proved it to be entirely sterile.

American Journal of Physiology, Baltimore

109: 193-386 (Aug. 1) 1934

Relationship of Bromide Content of the Lumbar Fluid to That of the Cisternal Fluid After the Walter Bromide Test. J. H. Masserman, Baltimore.—p. 193.

Comparison of Actual and Theoretical Forms of the Postincisural Portion of the Aortic Pulse Wave. G. S. Eadie and F. D. McCrea, Durham, N. C.—p. 197.

Respiratory Metabolism of Atrophic Muscle. G. C. Knowlton and H. M. Hines, Iowa City.—p. 200.

Quantitative Study of Production of Sympathin. A. Rosenblueth and R. S. Morison, Boston.—p. 209.

Effect of Vagotomy on Gastric Emptying Time. W. J. Meek and R. C. Herrin, Madison, Wis.—p. 221.

Effect of 2-4-Dinitrophenol on Oxygen Uptake of Kidney and Liver Tissue of the Rat. W. M. McCord, New Orleans.—p. 232.

Normal Behavior of the Pulmonary Blood Vessels with Observations on Intermittence of the Flow of Blood in Arterioles and Capillaries. J. T. Wearn, A. C. Ernstene, Cleveland; A. W. Bromer, Philadelphia; J. S. Barr, Boston; W. J. German, New Haven, Conn., and L. J. Zschiesche.—p. 236.

Rôle of Inferior Mesenteric Ganglions in Diphasic Response of Colon to Sympathetic Stimuli. H. Lawson, Louisville, Ky.—p. 257.

Fiber Constitution of Depressor Nerve of the Rabbit. J. O'Leary, P. Heinbecker and G. H. Bishop, St. Louis.—p. 274.

Reduction of Oxygen Consumption During Cardiac Inhibition. W. E. Garrey and J. T. Boykin, Nashville, Tenn.—p. 286.

Conduction Time in Afferent Tracts of Spinal Cord in Relation to Flexion Reflex. C. E. Leese and L. Einarson, Boston.—p. 296.

Glucose and Nonglucose Portions of "Blood Sugar" in Hepatic and Portal Veins of the Decapitate Cat at Different Sugar Levels. J. M. D. Olmsted and L. S. Read, Berkeley, Calif.—p. 303.

Absence of Light and Reproductive Cycle in the Guinea-Pig. E. W. Dempsey, H. I. Myers, W. C. Young and D. B. Jennison, Providence, R. I.—p. 307.

Creatine Content and Weight of Ventricles in Experimental Hyperthyroidism and After Thyroparathyroidectomy. D. W. Cowan, Iowa City.—p. 312.

Effect of Iron With and Without Other Elements on Production of Polycythemia. H. H. Beard and Erlene J. Andes, New Orleans.—p. 316.

Source of Estrin in the Pregnant Mare. G. H. Hart and H. H. Cole, Davis, Calif.—p. 320.

Method for Explanation of Kidney. C. P. Rhoads, New York.—p. 324.

Functional Effect of Explanting One Kidney and Removing the Other. C. P. Rhoads, A. S. Alving, Alma Hiller and D. D. Van Slyke, New York.—p. 329.

Relationships Between Urea Excretion, Renal Blood Flow, Renal Oxygen Consumption and Diuresis: Mechanism of Urea Excretion. D. D. Van Slyke, C. P. Rhoads, Alma Hiller and A. S. Alving, New York.—p. 336.

Liberation of Adrenergic and Cholinergic Substances in Submaxillary Gland. M. Cattell, H. G. Wolff and D. Clark, New York.—p. 375.

American Journal of Surgery, New York

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Neglected Affections and Lesions of the Deep Urethra. E. G. Ballenger, O. F. Elder and H. P. McDonald, Atlanta, Ga.—p. 201.
*Surgical Treatment of Acute and Chronic Empyema. L. W. Frank, Louisville, Ky.—p. 211.
Relief of Intractable Pain by (Subarachnoid) Injection of Alcohol. E. L. Stern, New York.—p. 217.
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Excision of Superior Hypogastric Plexus in Treatment of Intractable Interstitial Cystitis: Report of Five Cases. H. L. Douglass, Nashville, Tenn.—p. 249.
Prolapse of Uterus. J. E. Bellas, Peoria, Ill.—p. 258.
Cancer of Cervix. C. H. Weaver, Los Angeles.—p. 262.
Acute Suppurative Parotitis: Its Etiology, Pathogenesis and Treatment. H. S. Talbot, East Orange, N. J.—p. 267.
Histologic Studies of Spinal Cord Following Spinal Anesthesia. H. Koster and L. P. Kasman, Brooklyn.—p. 277.
Scope of Minor Operations in the Dispensary. H. C. Saltzstein, Detroit.—p. 281.
*Discussion of Some of Methods Used in Treatment of Superficial Granulating Wounds. J. E. Cannaday, Charleston, W. Va.—p. 288.
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Abdominal Glands. F. H. Bowman, Yonkers, N. Y.—p. 309.
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Venoclysis: Dangers and Contraindications. J. Tomarkin and A. Strauss, Cleveland.—p. 319.
Essential Hypertension with Treatment by Bilateral Subtotal Adrenalectomy. C. DeCourcy and J. L. DeCourcy, Cincinnati.—p. 324.
Control of Spastic Anal Sphincter. W. F. Preusser, Albany, N. Y.—p. 327.

Surgical Treatment of Empyema.—Frank emphasizes that operation for acute thoracic empyema is not an emergency and that aspiration or the closed operation should be employed in all cases in which the pleural fluid is not frank pus. Roentgen study of all pulmonary conditions is not an admission on the part of the practitioner of the lack of knowledge of symptoms and clinical signs but rather indicates his thoroughness in that he wants to see the existing pathology. Proper drainage regardless of the method employed will not only cure most cases of acute empyema but prevent chronic empyema. If chronic empyema does occur, plastic operation on the chest wall is followed by a lower mortality and better results than any other operation designed to obliterate the empyema cavity.

Treatment of Superficial Granulating Wounds.—Cannaday recommends for routine use a light, mouse-proof wire mesh and adhesive plaster in the treatment of wounds of a superficial nature. From this a screen or framework may be devised to be applied about the average wound so as to protect it from the traumatism incident to dressing contacts, clothing and other objects. This screen wire is cut to the size necessary to make an adequate shield over the wound. The edges are bound with strips of adhesive plaster and shaped so as to fit about the wound. Sometimes the edges of the screen or shield are elevated by placing a narrow runner of felt under each side of it. For the protection of a lacerated wound of the finger, an efficient screen may be made by encircling the finger with the wire mesh and holding it away from the tender, unhealed area by a felt support. In many instances raw areas so treated will heal in contradistinction to others that have been assiduously dressed day after day without apparent diminution in the size of the wound. The author has observed not a few instances of small unhealed areas that had resisted dressings of the conventional type over a period of six weeks or two months or longer, that did heal promptly after a short course of exposure to open air, sunlight or various electric lights advocated for this purpose. The application of heat, as by sunshine or lamp, presumably in part promotes healing by the improvement of circulation as well as by the drying of the skin. The position of the part involved often plays a large part in regard to the behavior of the case. The leg ulcer, waterlogged and edematous, makes slow, if any, gains while in the passive and dependent position. Periods of active exercise, alternating with rest in bed with the part elevated, are more likely to bring about improvement.

American Review of Tuberculosis, New York

30: 239-374 (Sept.) 1934

Simultaneous Bilateral Spontaneous Pneumothorax: Review of Literature and Report of Recurrent Case Due to Congenital Cysts of Lung. W. R. Oechsli and S. H. Miles, Olive View, Calif.—p. 239.
*Leukocyte Counts During Artificial Pneumothorax Treatment and Lung Expansion. J. K. Deegan, New Haven, Conn.—p. 256.
Alternate Artificial Pneumothorax. J. Head, Naperville, Ill.—p. 277.
Efficient Apparatus and Technic for Artificial Pneumothorax Refills. D. H. Minnis, Warrensville, Ohio.—p. 281.
Partial Cauterization of Pleural Adhesions by Closed Intrapleural Pneumolysis. J. H. Forsee, Denver.—p. 287.
Atelectasis and Disappearance of Cavities. F. W. Holcomb and G. W. Weber, Kingston, N. Y.—p. 299.
Occlusion of Trachea and Bronchi by Tuberculous Process Complicating Pulmonary Tuberculosis: Case Report with Autopsy Findings. M. McConkey, Ray Brook, N. Y.—p. 307.
*Pulmonary Aspergillosis in Association with Bronchial Carcinoma. R. H. Kampmeier, New Orleans, and H. A. Black, Pueblo, Colo.—p. 315.
Clinical Study of Allergy and Immunity. A. A. Karan and V. H. Danford, Wallum Lake, R. I.—p. 320.
Further Experiences with Ma-100 Proteins. E. P. K. Fenger, E. S. Mariette, Oak Terrace, Minn.; Dorothy W. Hutchinson and A. J. Ouellete, Minneapolis.—p. 329.
Viability of Tubercle Bacilli in Tissues and Sputum Preserved in Vitro. C. B. Vidal, Denver.—p. 344.
Tuberculosis and Mental Disease: Tuberculin Survey in State Hospital. E. Bogen, Olive View, Calif.; Esther Bogen Tietz and F. Grace, Cincinnati.—p. 351.
*Effect of Moderately Large Dosage of Viosterol on Tuberculous Children. H. G. Poncher and B. M. Gasul, Chicago.—p. 358.
Dietary Treatment for Tuberculosis: I. Results in Bone and Joint Tuberculosis. H. Stempa, Hartford, Conn.—p. 365.

Leukocyte Counts During Pneumothorax Treatment.—Deegan used the interpretations of Medlar in studying the leukocyte count in fifty-two cases of far advanced pulmonary tuberculosis subjected to artificial pneumothorax treatment and other forms of collapse therapy in which the collapsed lung was allowed to expand subsequently. Twenty-five cases were classified as clinically arrested on discharge: in nine instances the initial septic type of blood picture changed to nonseptic, in two a hyperplastic type of blood picture was assumed, and in ten the blood picture showed a persistent septic type which, however, became less septic under treatment. One patient discharged as clinically arrested maintained an elevated septic type of blood count throughout the period of observation, although the clinical state was strikingly improved. In three cases which presented the septic type of blood count persistently in contrast to marked clinical and roentgenologic improvement it was felt that factors other than tuberculosis might possibly be influencing the blood picture. Six cases were discharged as clinically improved with the blood picture in agreement with their progress. Ten cases are classified as unimproved; all of them maintain a septic type of blood picture and, clinically, are stationary or retrogressing. Eleven patients died following the unsuccessful course of artificial pneumothorax therapy. In several instances in which there were chronic infections together with the tuberculosis, the blood picture was found to be septic in type, and it was thought that the intercurrent infection rather than tuberculosis was the cause of the persistent septic blood picture, as the patients were able to resume work and have remained relatively asymptomatic since discharge. The authors consider the Medlar interpretation of blood counts in cases of far advanced pulmonary tuberculosis subjected to collapse therapy a valuable guide in the clinical administration and control of these patients.

Pulmonary Aspergillosis and Bronchial Carcinoma.—Kampmeier and Black report a case of aspergillosis that occurred in the presence of a bronchial carcinoma. They made the diagnosis, tentatively at first, on the history and physical examination. However, some doubt was cast by the constant presence of the aspergillus in the sputum without tubercle bacilli. The roentgen shadow in the left lower lobe could not be satisfactorily explained on the basis of bronchogenic malignant tumor as could the hilus shadow, which was compatible with such a diagnosis. The fact that the shadow of the lower lobe cleared a great deal by the use of potassium iodide also was confusing. High voltage roentgen therapy was used over the hilus, however. Giese saw the patient in consultation and committed himself to a diagnosis of malignant tumor. Because of retention of secretion due to the neo-

plasm, the fungus probably had a good medium for growth. Whether the organism was a factor in the production of symptoms, and whether it aided in the destruction of tissue in the carcinomatous area is a matter for speculation.

Effect of Viosterol on Tuberculous Children.—Poncher and Gasul gave fifty-nine children, all contacts with tuberculosis and showing at least a definitely positive tuberculin reaction, a daily dose of 150 and 300 drops (10 and 20 cc.) of viosterol for four and three months respectively. The dosage of viosterol did not appear to have any definite effect on the course of the tuberculous process. Hypercalcemia was not produced. The authors feel that the use of relatively large therapeutic doses of viosterol administered over a long time to patients having tuberculosis is not favorable. Despite the failure to produce a definite hypercalcemia it was their impression that fluctuation in the weight curve (increase on the 150 drops of viosterol and decrease on the 300) that occurred is an undesirable effect. It may be that the administration of a larger dose for a short period will obviate this difficulty. When hypercalcemia is produced, symptoms such as anorexia and muscular weakness occur. While these symptoms disappear when viosterol is discontinued the desirability of hypercalcemia with such symptoms, even as temporary sequelae, is open to question. All patients, however, gained weight when viosterol was discontinued and this gain was much more pronounced than during the period when 150 drops of viosterol was administered.

Anatomical Record, Philadelphia

60: 1-124 (Aug. 25) 1934. Partial Index

Effect of Elevated Temperature on Mitochondria of Guinea-Pig Pancreas. F. Meola, Rochester, N. Y.—p. 5.

Inexpensive Coarse Adjustment Remote Control for Photomicrography. G. S. Marshall and J. G. Howard, Dunedin, New Zealand.—p. 19.

Cytologic Studies on Rat Pituitary After Injections of Pregnancy Urine Extract and Pregnancy Blood Serum. Aura E. Severinghaus, New York.—p. 43.

Studies on Physiology of Lactation: IV. Assay of Lactogenic Hormone of Anterior Hypophysis. W. O. Nelson, Columbia, Mo.—p. 69.

Weight of Rat Ovaries After Hysterectomy. D. P. Murphy, Philadelphia.—p. 77.

Presence, Properties and Distribution of Intercellular Ground Substance of Loose Connective Tissue. Sylvia H. Bensley, Chicago.—p. 93.

Annals of Surgery, Philadelphia

100: 241-400 (Aug.) 1934

Operability of Brain Tumors. A. W. Adson, Rochester, Minn.—p. 241.

Physiologic Considerations Related to Infusion Treatment of Shock. W. F. MacFee, New York, and R. R. Baldridge, Providence, R. I.—p. 266.

*Myositis Ossificans (Circumscripta) in Ligamentum Nuchae. J. E. M. Thomson, Lincoln, Neb.—p. 279.

Eye Complications in Exophthalmic Goiter: Cataracts and Exophthalmos. R. B. Cattell, Boston.—p. 284.

Traumatic Subdural Hemorrhage: Surgical Removal of Clot: Recovery. P. Alava and S. Stat, Wilmington, Del.—p. 304.

*Subtotal Bilateral Adrenalectomy for Hyperadrenalism (Essential Hypertension). J. L. DeCourcy, Cincinnati.—p. 310.

Liver Deaths (So Called): Rapid High Temperature Deaths. F. G. Connell, Oshkosh, Wis.—p. 319.

Malignant Tumors of Large Intestine: Pathologic Aspects of Two Hundred and Ten Cases Coming to Necropsy. L. M. Larson and M. Nordland, Minneapolis.—p. 328.

Deformities Resulting from Unilateral Surgical Trauma to the Epiphyses. C. H. Snyder, Ann Arbor, Mich.—p. 335.

*Overpull During the Treatment of Fractures. L. Blum, New York.—p. 343.

Arthrotomy of the Knee Joint: Statistical Study of Two Hundred and Fifty Cases. H. Milch and V. Raisman, New York.—p. 357.

Recurrent Subluxation of the Ankle Joint. R. C. Elmslie, London, England.—p. 364.

Subcutaneous Rupture of Tendon of Tibialis Anticus. M. S. Burman, New York.—p. 368.

Myositis Ossificans in Ligamentum Nuchae.—Thomson reports two cases of myositis ossificans circumscripta. Neither of the patients (men) gave a history of any direct injury. Both patients complained of the sensation of a lump near the base of the back of the neck, which seemed to come out, then disappeared and was not in itself painful except on pressure or manipulation, at which time it caused a "sickish feeling," slight nausea, shortness of breath and light headedness. Throwing the head backward, driving a car, going over bumps and wearing a stiff tight collar aggravated the symptoms. The one patient who recognized the possibilities of surgical relief is now rehabilitated in his profession; the other died of other causes. No other evidence of myositis ossificans was found in either of these patients. The fact that these osteomatous bodies occurred in the collar line of the neck and the absence of a history of acute trauma would lead one to the conclusion that possibly the continuous irritation of a tight or stiff collar band or collar button might be the etiologic factor causing this condition. The author believes that, if his deduction is correct, these two cases may be classified as myositis ossificans circumscripta. A rather extensive search of the literature has not revealed any similar cases of muscular osteomas in the region of the ligamentum nuchae, except in young persons severely afflicted with the progressive type of myositis ossificans. Recalling the postmortem observations of the fatal case a year later gave the author the clue to the diagnosis of the other case cited; and the gratifying results of the operative removal of the osteomatous bodies, he believes, justifies his report. Perhaps these two cases are not sufficiently significant to warrant the suggestion that possibly roentgen examination of patients suffering similar symptoms might reveal osteomas. The author points out that the marked similarity between these bodies and those seen in hypertrophic (osteo-arthritic) arthritis cannot be overlooked, nor can it be entirely ruled out, as the calcareous deposits of the two conditions are similar. However, the lack of roentgen evidence of arthritis in the patient operated on and the lack of postmortem evidence of hypertrophic arthritis in the patient who died rather indicate that these are osteomas of myositis ossificans circumscripta.

Subtotal Bilateral Suprarenalectomy for Hypersuprarenalism.—DeCourcy recommends subtotal suprarenalectomy for the relief and cure of essential hypertension, based on the hypothesis that the cause of this condition lies in a hyperplasia of the medullary tissue of the suprarenals under constant sympathetic stimulation, resulting in the secretion of excessive amounts of epinephrine into the blood stream. The operation of subtotal suprarenalectomy, as performed by him, consists in the removal of from two thirds to three fourths of each suprarenal. It is done in two stages, with an interval of about two weeks between operations. The portion removed includes both medulla and cortex and is taken from the part of the organ remote from the entrance of the blood vessels. The approach is made from the back through a kidney incision, the kidney being held down with a special retractor. The suprarenal must be recognized and stripped clean of all fat and overlying structures. The portion to be removed is then clamped and excised, the raw surface being covered with a continuous chromic suture. Spinal anesthesia is employed and the blood pressure is watched closely throughout the entire operation. If the fall is more than anticipated, ephedrine is given promptly and intravenous saline solution with epinephrine should be ready in case of collapse. These patients, however, seem to tolerate spinal anesthesia very well. It is now about four months since the author has performed the first operation. He has operated on eight patients, doing sixteen operations. In every case the patients operated on have been improved; that is, the symptoms of hypertension have disappeared. The blood pressure has remained lowered in every case, the average drop and maintenance having been from 70 to 90 points systolic and from 40 to 50 points diastolic.

Overpull During the Treatment of Fractures.—Blum's study of twenty-three cases of overpull in fractures of the shafts of long bones reveals this condition to be a serious one by reason of an associated marked delay in healing, a higher incidence of necessary operative procedures and an increased time of hospitalization. It usually occurs in the first few hours and days following the institution of effective traction and, as a rule, is not successfully corrected by simple diminution of the tractive force. The prevention of overpull is of more efficacy in avoiding the untoward sequelae than is its treatment. This can be accomplished only by more thorough analysis of all the factors involved in each individual patient before ordering the type and amount of traction to be applied. In view of the widespread employment of the traction-suspension method in the treatment of fractures, the seriousness of this complication renders it worthy of consideration.

Arkansas Medical Society Journal, Fort Smith

31: 55-70 (Sept.) 1934

Relationship of Allergy to Otolaryngology. J. J. Shea, Memphis, Tenn. —p. 55.

Evaluation of Swift-Ellis Therapy in Treatment of Neurosyphilis. G. E. Tarkington, Hot Springs National Park.—p. 60.

Colorado Medicine, Denver

31: 293-328 (Sept.) 1934

Otitic Sepsis Independent of Sinus Thrombosis. T. E. Beyer, Denver. —p. 300.

Recent Progress in Eczema. J. V. Ambler and G. P. Lingenfelter, Denver.—p. 304.

*Leukocytosis in Chronic Pulmonary Tuberculosis. L. Elrick, Denver.—p. 308.

Hay Fever Flora of Pikes Peak Region. W. C. Service, Colorado Springs.—p. 311.

Leukocytosis in Chronic Pulmonary Tuberculosis.—Elrick points out that a review of the literature casts doubt on the correctness of the frequently held theory that leukocytosis in pulmonary tuberculosis is always due to a mixed infection with pyogenic organisms. The total leukocyte count, on the average, is lowest in incipient cases of tuberculosis and highest in far advanced cases. There are numerous individual cases that are exceptions to this rule, however. Leukocytosis is rare in uncomplicated minimal or moderately advanced tuberculosis, but fairly common in far advanced cases. In a study of one total leukocyte count in each of 229 unselected cases of far advanced chronic pulmonary tuberculosis without complications, the author observed a count of more than 12,000 in 24 per cent, and occasionally the count was as high as 20,000 or 25,000. The highest counts occurred in cases in which cavities had formed. That tuberculosis may cause a leukocytosis is an important fact to keep in mind when interpreting the significance of a high white blood cell count in a suspected acute surgical condition of the abdomen in a tuberculous patient.

Georgia Medical Association Journal, Atlanta

23: 287-328 (Aug.) 1934

Hypothyroidism, with Especial Reference to Types. E. F. Wahl, Thomasville.—p. 287.

Infantile Spinal Paralysis Cured: Case Report. A. A. Barge, Newnan. —p. 319.

Iowa State Medical Society Journal, Des Moines

24: 469-506 (Sept.) 1934

Surgical Clinics: Applicability of Certain Surgical Procedures for Recurrent Peptic Ulcer: The Common Duct in Relation to Surgical Conditions of Biliary Tract. V. C. Hunt, Los Angeles.—p. 469.

Study of Neonatal Deaths at the University Hospital. J. H. Randall, Iowa City.—p. 477.

Intracranial Hemorrhage. R. E. Crowder, Sioux City.—p. 479.

Treatment of Burns. N. M. Whitehill, Boone.—p. 481.

Clinical Significance of Hemorrhage from Bowel. W. H. Rendleman, Davenport.—p. 483.

Diagnosis and Surgical Treatment of Pyloric Obstruction in Infants. H. I. Down, Sioux City.—p. 485.

Journal of Biological Chemistry, Baltimore

106: 1-430 (Aug.) 1934. Partial Index

Inorganic Phosphorus of Horse Serum: Effect of Age and Nutrition. P. B. Pearson, Pomona, Calif.—p. 1.

Studies of the Acid-Base Condition of Blood: III. Value of pk' in the Henderson-Hasselbalch Equation for Human and Dog Serums, Determined with the Simms Electrode. H. W. Robinson, J. W. Price and G. E. Cullen, Cincinnati.—p. 7.

Study of Tissue Respiration and Certain Reducing Substances in Chronic Fluorosis and Scurvy in the Guinea-Pig. P. H. Phillips, F. J. Stare and C. A. Elvehjem, Madison, Wis.—p. 41.

Chemistry of Lipids of Tubercle Bacilli: XXXIX. Constitution of Tuberculostearic Acid. M. A. Spielman, New Haven, Conn.—p. 87.

Influence of Sodium and Potassium Content of Diet on Sodium Concentration of Human Centrifugated Red Blood Cells. A. M. Butler and E. M. MacKay, New York.—p. 107.

Quantitative Determination of Small Amounts of Gonadotropic Material. P. A. Katzman and E. A. Doisy, St. Louis.—p. 125.

Human Milk Studies: XV. Nonprotein Nitrogen Constituents. Betty Nims Erickson, Margaret Gulick, Helen A. Hunscher and Icie G. Macy, Detroit.—p. 145.

Reinvestigation of Phenomenon of a First Acid Change in Whole Blood. E. P. Laug, Philadelphia.—p. 161.

Gasometric Microdetermination of Phosphoric Acid. E. Kirk, New York.—p. 191.

Gasometric Microdetermination of Lipids in Plasma, Blood Cells and Tissues. E. Kirk, I. H. Page and D. D. Van Slyke, New York. —p. 203.

Studies of the Fat of Human Milk. A. W. Bosworth, Columbus, Ohio. —p. 235.

Distribution of Iron in Tissues, Particularly Liver, During Peptic Digestion and Autolysis. W. D. McFarlane, Edmonton, Alta.—p. 245.

Effect of Saturated Fatty Acid Content of Diet on Composition of Body Fat. A. D. Barbour, Toronto.—p. 281.

Peptic Hydrolysis of Insulin. A. M. Fisher and D. A. Scott, Toronto. —p. 289.

Preparation of Sodium Tungstate Free from Molybdate, Together with Simplified Process for the Preparation of Correct Uric Acid Reagent (and some Comments). O. Folin, Boston.—p. 311.

Changes of Total Lipid and Iodine Number of Blood Fat in Alimentary Lipemia. W. R. Wilson and J. P. Hanner, New Haven, Conn. —p. 323.

Rôle of Copper in Carbohydrate Metabolism. H. L. Keil and V. E. Nelson, Ames, Iowa.—p. 343.

Spectral Analysis of Purified Tuberculin. Mona Spiegel-Adolf and Florence B. Seibert, Philadelphia.—p. 373.

Ergot Alkaloids: III. Lysergic Acid. W. A. Jacobs and L. C. Craig, New York.—p. 393.

Antitrypsin of Egg White. A. K. Balls and T. L. Swenson, Washington, D. C.—p. 409.

Laryngoscope, St. Louis

44: 599-682 (Aug.) 1934

Clinical Presentation of Improvement in Surgical Repair of Facial Nerve. A. B. Duel, New York.—p. 599.

Acute Frontal Sinusitis and Brain Abscess. W. Cariss, Philadelphia.—p. 612.

Multiple Dentigerous Cysts Involving Both Maxillary Sinuses: Report of Case. G. W. Mackenzie, Philadelphia.—p. 621.

Diets: Discussion of Certain Metabolic Principles and Their Application to Otolaryngology. C. Striker, Cincinnati.—p. 624.

Foreign Bodies in Food and Air Passages: Plea for Early, Deliberate and Careful Extraction. J. W. Miller, New York.—p. 642.

Sphenoid Sinus. R. F. Ridpath, Philadelphia.—p. 657.

Cerebrospinal Otorrhea: Report of Two Cases (Review of Literature). M. S. Ersner and D. Myers, Philadelphia.—p. 668.

New England Journal of Medicine, Boston

211: 385-430 (Aug. 30) 1934

Biologic Actions of Dinitrophenol and Related Compounds: Review. G. Edsall, Chestnut Hill, Mass.—p. 385.

Chronic Empyema with Bronchial Fistula Cured by Tidal Drainage: Case Report. P. G. McLellan, Hartford, Conn.—p. 390.

Management of Patient with Anginal Pain. R. L. Levy, New York.—p. 392.

Social Aspects of Diabetes: Study of Sixty Cases. Genevieve Peterson, Rochester, Minn.—p. 397.

*Carcinoma of Cervix Uteri with Eight Months' Pregnancy. J. R. Miller, Hartford, Conn.—p. 402.

Group Practice: Case. H. C. Saltzstein, Detroit.—p. 405.

Medical and Public Health Attitude Toward Smallpox Vaccination and Diphtheria Immunization. G. T. Palmer and M. Derryberry, New York.—p. 413.

Manifestations of Streptococcus Infection. Faith L. Meserve, Weston, Mass.—p. 415.

Carcinoma of Cervix Uteri and Pregnancy.—Miller reports a case of carcinoma of the cervix uteri with a pregnancy of eight months. In its treatment, classic cesarean section was followed by immediate Wertheim hysterectomy under spinal anesthesia. Before the anesthetic was given the vagina was cleansed as carefully as possible, dried and filled with 4 per cent mercurochrome gauze. It was evident that the cervix was infected not only by necrosis of the carcinoma but also because of a biopsy wound, so the author planned to remove the fetus by fundal incision and leave the placenta in the uterus during hysterectomy. It was impossible to carry out this plan, for the placenta was implanted on the anterior wall and had to be removed. However, he was enabled to remove the placenta, cutting the membranes free and leaving them in situ. When the sutured fundus was opened later in the laboratory, the internal os was found to be covered entirely by membranes. Hemolytic streptococcus and Staphylococcus aureus were found on culture taken under the membranes at the internal os. The size of the cervix made any radical parametrial dissection not only inadvisable but impossible. Once the uterosacral ligaments were cut as far back as clamps could be placed, the uterus became mobilized. Dissection of from 3 to 4 inches of ureter was necessary and not unusually difficult and the vaginal clamps could be placed with ease. The patient stood the operation well, and healing ensued without infection. During the second week she suffered from cystitis and pyelitis and has made a slow convalescence. She is to receive high voltage roentgen therapy as soon as she can be transported. The baby weighed 5 pounds 5 ounces (2,400 Gm.) at birth and has gained normally on artificial feeding.

New Orleans Medical and Surgical Journal

87: 73-144 (Aug.) 1934

Roentgenologic Diagnosis of Bone Tumors. L. J. Menville, New Orleans.—p. 73.
Uterine Bleeding. B. C. Garrett, Shreveport, La.—p. 78.
Chronically Diseased Cervix as a Focus of Systemic Infection. P. Graffagnino, New Orleans.—p. 83.
Nephropexy and Its Indications. J. R. Stamper, Shreveport, La.—p. 86.
Suppurative Otitis Media. A. L. Peters, Monroe, La.—p. 90.
Simple Method of Prescribing Diets for Diabetics. I. I. Lemann, New Orleans.—p. 92.
High Carbohydrate Diet in Diabetes Mellitus. M. Gardberg, New Orleans.—p. 96.
Diet in Treatment of Migraine. J. S. D'Antoni, New Orleans. —p. 100.
Dietary Treatment of Avitaminosis. S. Jacobs, New Orleans.—p. 103.
Multiple Bone Cysts Associated with Hyperparathyroidism: Case. D. M. Stewart, New Orleans.—p. 106.
Report of Pasteur Institute of the Charity Hospital of New Orleans for the Year 1933. R. D'Aunoy and J. H. Connell, New Orleans. —p. 110.

Oklahoma State Medical Assn. Journal, McAlester

27: 277-306 (Aug.) 1934

Gleanings from a Tour of Some Foreign Surgical Clinics. J. F. Park, McAlester.—p. 277.
Nonsurgical Management of Benign Prostatic Hypertrophy. S. F. Wildman, Oklahoma City.—p. 280.
Clinical Course of Ureteral Anomalies. D. W. Branham, Oklahoma City.—p. 282.
Vesicular Eruptions of Hands and Feet. W. A. Showman, Tulsa.—p. 284.
Treatment of Urinary Tract Infections. A. L. Clark, Oklahoma City.—p. 287.
Management of Varicose Eczema and Ulcers. W. E. Eastland, Oklahoma City.—p. 290.

Philippine Islands Med. Association Journal, Manila

14: 289-328 (Aug.) 1934

Further Studies on Vital Capacity of Filipinos. N. Cordero and J. Salcedo, Manila.—p. 289.
Activities of Bureau of Labor in Relation to Disease and Accident Prevention. J. Santillan, Manila.—p. 294.
Sympathetic Ophthalmia: Report of Case That Recovered. A. R. Ubaldo and C. D. Ayuyao, Manila.—p. 297.
Studies on Olympic Athletes: Preliminary Report. W. Pascual, J. Salcedo, P. Sapinoso, J. S. Cruz, M. Ocampo and E. Bulatao, Manila. —p. 302.
Causes of Abortion, Miscarriage, Premature Birth and Stillbirth: Preliminary Report. J. O. Quiason, Manila.—p. 304.
Should Sex Hygiene Be Taught in Our Public Schools? R. G. Padua, Manila.—p. 306.

Southern Medical Journal, Birmingham, Ala.

27: 747-824 (Sept.) 1934

Surgical and Radiation Treatment of Gastric Cancer. G. T. Pack, New York.—p. 747.
Narcolepsy, with Especial Reference to Carotid Sinus Reflex. D. C. Wilson and R. F. Watson, University, Va.—p. 754.
Extrabulbar or Duodenal Ulcer. W. W. Robinson, Memphis, Tenn.—p. 759.
Traumatic Myositis Ossificans. E. R. Campbell, Chattanooga, Tenn.—p. 763.
Normal and Pathologic Larynx Under Suspension Laryngoscopy. F. E. LeJeune, New Orleans.—p. 770.
Cancer of Larynx: Laryngectomy. E. A. Looper, Baltimore.—p. 772.
Treatment of Cancer of Larynx: Laryngofissure Versus Laryngectomy. M. Equen, Atlanta, Ga.—p. 776.
Rocky Mountain Spotted Fever Invades the East. J. G. Cumming, Washington, D. C.—p. 783.
Rocky Mountain Spotted Fever in North Carolina. D. F. Milam, Raleigh, N. C.—p. 788.
The Commoner Forms of Arthritis. W. H. Higgins, Richmond, Va.—p. 793.
Biologic Action of Radiant Energy: Ultraviolet. E. R. Whitmore, Washington, D. C.—p. 796.
*Nephritis Complicating Impetigo. L. E. Sutton Jr., Richmond, Va.—p. 798.
Treatment of Nevus Vascularis. W. E. Eastland, Oklahoma City.—p. 802.
Gunshot Wounds of Abdomen. F. C. Wilson, Birmingham, Ala.—p. 805.
Traumatic Rupture of Kidney. J. G. Pratt, New Orleans.—p. 809.
Intravenous Use of Methylene Blue in Treatment of Cyanide and Carbon Monoxide Poisoning. J. C. Geiger and J. P. Gray, San Francisco. —p. 812.

Nephritis Complicating Impetigo.—Sutton discusses five cases of acute nephritis which suggest that impetigo may have been the etiologic agent of nephritis. Nephritis did not occur in any of these cases until the impetigo had been established, and the impetiginous symptoms were the only ones complained of at the time of the beginning of the nephritis. During the period in which these five cases were admitted to the hospital, thirteen other cases were diagnosed as acute nephritis, in which tonsillitis or some other condition was considered the etiologic agent. Acute nephritis in children is usually attributed to infections. Whether it is due to bacteria that act directly on the kidney or their toxins carried there by the blood stream has not been determined definitely. The author's five cases of acute nephritis, accompanied by impetigo, which occurred during a period of two years, comprised 28 per cent of the nephritic cases admitted to his clinic during this period and he reports them for the purpose of stressing the fact that impetigo, or the so-called dew-boils infection, which is frequent in the South, should not be taken lightly. This disease may be followed by complications.

Southwestern Medicine, Phoenix, Ariz.

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Temperature in Vaccine Therapy and Biologics. E. D. Strong, El Paso, Texas.—p. 256.
Collapse Therapy in Pulmonary Tuberculosis. C. A. Thomas, S. C. Davis and R. A. Wilson, Tucson, Ariz.—p. 259.

Virginia Medical Monthly, Richmond

61: 251-314 (Aug.) 1934

Cancer of the Stomach. J. S. Horsley, Richmond.—p. 251.
Endometriosis with Reference to Intestinal Implantation. W. H. Goodwin, University.—p. 257.
Early Diagnosis of Primary Malignant Bone Tumors in Early Life. M. J. Payne, Staunton.—p. 263.
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Management of Unconscious Patients, with Especial Reference to Posture in the Treatment. C. C. Coleman, Richmond.—p. 270.
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Importance of Body Build in Determining Ideal Weight. W. A. McGee, Richmond.—p. 282.
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Blood Sedimentation in Pulmonary Disease. E. C. Harper and T. S. Jennings, Richmond.—p. 286.
Granulosa Cell Carcinoma of the Ovary: Case Report. R. O. Lyday, Greensboro, N. C.—p. 289.
Bromide Intoxication or Bromide Psychosis. C. P. Ryland Jr., Binghamton, N. Y.—p. 292.
Gallbladder Disease: Report of One Hundred Consecutive Cases. O. T. Amory, Newport News.—p. 296.
Cesarean Section. P. E. Thornhill, Norfolk.—p. 299.

61: 315-376 (Sept.) 1934

Facts and Theories of Adrenal Function. S. W. Britton, University. —p. 316.
Management of Cross Eyes in Children: Illustrated with Lantern Slides. J. A. Pilcher Jr., Roanoke.—p. 320.
*Abdominal Surgery in Children. J. S. Horsley Jr., Richmond.—p. 323.
Conservative Management of Pelvic Infections. L. D. Keyser, Roanoke. —p. 329.
State Medicine Problems. J. E. K. Flannagan, Salem.—p. 335.
Vitamin D and Vitamin D Milk. W. L. Harris, Norfolk.—p. 344.
Diphtheria Immunization Program in Virginia. B. B. Bagby, Richmond. —p. 348.
Obstetric Emergencies. I. M. Hardy, Kinston, N. C.—p. 353.
Neutropenic Syndrome. Regena Cook Beck, Richmond.—p. 355.

Abdominal Surgery in Children.—Horsley emphasizes the point that the treatment of surgical conditions in children is not merely an adjustment of surgical principles and technic to a small scale. The child cannot be treated as a small adult. Increased and unstable metabolism in children incidental to normal growth renders them more liable to a violent reaction from a slight cause and makes disease sudden in onset and intense in symptoms. Moreover, symptoms are not limited to any particular region as in adults. The younger the child the more apt is the disease to manifest itself in generalized constitutional expressions rather than in focal signs and symptoms. Myers states that infants require much more water per pound of body weight than adults and that the loss of 10 per cent of the fluids of the body is grave and 20 per cent usually fatal. Surgical shock is easily caused and hemorrhage poorly borne, because the proportion of blood to body weight in a child is 1:20 as compared to 1:13 in an adult. Hence, narrower margins of safety in surgery of infants and children demand special attention and preparation. Pediatric surgery must be gentle, rapid and skilful. In infants and children the abdomen is normally large in proportion to the whole body and appears more so because of the small size of the pelvis and thorax. The abdomen contains not only the organs found in the adult but also the bladder and upper end of the rectum.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Anæsthesia, Manchester

11: 131-166 (July) 1934

*Postoperative Vomiting. G. F. R. Smith.—p. 132.
Present Position of Avertin Anesthesia. K. Maddox.—p. 140.
Avertin in Obstetrics. C. Coghlan.—p. 145.
Self-Administered Analgesia for Midwifery of General Practice. R. J. Minnitt.—p. 148.
General Intravenous Anesthesia with Evipan Sodium. P. Serocca.—p. 153.

Postoperative Vomiting.—Smith observed that the use of 2 ounces (60 cc.) of dextrose orally three hours and 5 units of insulin half an hour before operation, and the repetition of the dose of insulin when the patient is returned to the ward and 4 ounces (120 cc.) of dextrose by rectum every four or five hours reduced the serious type of vomiting from 26 to 12.5 per cent in major and from 9.7 to 1.2 per cent in minor operations. His results in a series of 153 cases leave no doubt that in cases in which ether is used there is no way of controlling postoperative sickness except in a small proportion of cases, for which the cause must be looked for elsewhere than in pancreatic dysfunction. Provided that a good brand of ether is used, the particular make has little or no effect on postanesthetic vomiting. It is unjustifiable to use other than some form of purified ether. Morphine and atropine given in the usual way cannot be improved on. In insulin there is a real advance in prevention and treatment of postanesthetic toxemia and one that deserves wider recognition than it has at present.

Journal of Tropical Medicine and Hygiene, London

37: 225-240 (Aug. 1) 1934

Intimate Relationship Between Pellagra and Pemphigus. I. Sabry.—p. 225.
Pellagra in the Sudan. N. L. Corkill.—p. 231.

Lancet, London

2: 343-394 (Aug. 18) 1934

Problems of Gallstones. E. R. Flint.—p. 343.
Toxemias of Pregnancy: II. Significance of Symptoms and Their Treatment. Louise McIlroy.—p. 345.
*Association Between Neurosyphilis and Cardiovascular Syphilis. F. H. Healey.—p. 350.
*Pentnucleotide Treatment of Agranulocytic Angina. J. F. Wilkinson and M. C. G. Israëls.—p. 353.
Agranulocytosis Complicating Typhoid Fever. W. K. Blackie.—p. 355.
Fate of Follicular Hormone in Living Body. B. Zondek.—p. 356.
Thoracoscopy by Single Puncture. F. G. Chandler.—p. 357.
Lysis of Pneumococci by Sodium Desoxycholate: Effect of Varying Concentrations of Sodium Chloride. A. B. Anderson and P. D. Hart.—p. 359.
Dermatitis Due to Linseed. R. Aitken.—p. 360.

Association Between Neurosyphilis and Cardiovascular Syphilis.—Healey points out that the figures obtained in a series of cases examined at a mental hospital show a much higher proportion of cardiovascular syphilis in cases of neurosyphilis than any yet reported. Cases of dementia paralytica sent to a mental hospital are advanced and therefore such a close correlation between neurosyphilis and cardiosyphilis is to be expected. The general conclusion to be drawn is that syphilis affects the whole body more commonly than is supposed; it supports the contention of Warthin that spirochetes will be found in every organ of the body in a syphilitic patient. It also supports the view that dementia paralytica is an active syphilitic infection and not a parasyphilitic process. The incidence of cardiovascular syphilis in association with neurosyphilis and mental disease is of immense importance from the point of view of treatment by induced malaria. In the early years of this treatment many patients died suddenly during or just after their pyrexial course, no clinical evidence of aortic disease having been found. It was taught that the clinical diagnosis of the nervous lesions was predominantly in the fourth decade and that of the cardiac lesions in the fifth decade, but in mental hospital work the two kinds of disease occur together in the fourth and fifth decades. Which lesion will be noted first depends partly on the severity of the separate lesions and also on the relative sensitivity of the two systems in the patient. Thus the make-up of the patient from both the physical and mental angles determines this issue. Ernest Jones has demonstrated that certain people have undue sensitivity of their internal organs, and, if this state is well marked, hypochondriac symptoms will result. These psychasthenic people, when infected with syphilis, complain of the lesions according to the more sensitive system, and thus the diagnosis is determined to a cardiac or a nervous state. In general one would expect an earlier outcry on the part of the nervous system, as it shows a more sensitive reaction to disease. In his series the author has found cases of fulminating dementia paralytica with pronounced cardiovascular changes within a decade of the initial infection. It is certain that patients who had short courses of arsphenamine treatment relapsed sooner than those treated with long courses of mercury. The latent period averages about ten years with arsphenamine treatment and twenty years with mercurial treatment. The author believes that it is likely that the spirochetal infection lies latent in the main lymph nodes and that at the end of the incubation period for the cardiac and nervous lesions, for some reason at present unknown, the infection flares up again and attacks the vital organs. It is known that the posterior cervical glands are affected markedly in secondary syphilis, and the author suggests that the spirochetes, lying latent in these glands, ascend into the spinal canal and cranial cavity and so cause syphilis of the spinal cord and brain.

Pentnucleotide Treatment of Agranulocytic Angina.—Wilkinson and Israëls report a case presenting the typical features of agranulocytic angina: rapid onset, lesions of the mouth, low pathogenicity of organisms isolated from these lesions and a myelocytic response following pentnucleotide therapy. In such cases the question arises as to whether recovery is due to the therapeutic agent employed or whether it is a spontaneous recovery. Before nuclein therapy, agranulocytic angina seems nearly always to have ended fatally. Jackson and his associates and Reznikoff have reported a considerable proportion of successes with nuclein therapy. There therefore seems to be definite ground for attributing the recovery of most of these cases to the nuclein preparation employed. The evidence of regeneration of the myelopoietic tissues as shown by the myelocytic response favors the view that agranulocytic angina is primarily a marrow dyscrasia and that the symptoms of the mouth are secondary in nature. Agranulocytosis may, however, also occur as an event in a long illness, as in the case of Fairley and Scott. In these cases the prognosis is of necessity less favorable. Madison and Squier have recently reported cases of agranulocytosis which they attribute to poisoning with amidopyrine, either alone or in combination with a barbiturate. Their observations provide further support for the hypothesis that the condition of the marrow is primary. In the case presented, neither of these drugs had been given. This patient was menstruating at the time of onset of the agranulocytosis. Thompson noticed that the onset of agranulocytosis in the majority of the women patients under his care corresponded with the commencement of their menstrual periods; whether this is purely coincidental or has a definite etiologic meaning is not at present known.

Journal of Oriental Medicine, South Manchuria

21: 1-12 (July) 1934

Cow's Milk in Manchuria and Mongolia: Part III. Phosphorus Content of Cow's Milk and Its Distribution. M. Sugiura.—p. 1.
Components of Hemolytic Complement: Part IV. Difference Between Hemolytic and Bacteriolytic Complements. B. Mitsuse.—p. 2.
Id.: Part V. Nature of "Fifth Component" and Difference Between This Component and "Toshima's Cold, Noncomplementary Hemotoxin," Toxin Capable of Hemolysis. B. Mitsuse.—p. 3.
Experimental Study on Freud's Early Poison. K. Kashiwabara.—p. 4.
Study on History of Bacteria Artificially Introduced into Body and Factors of Infection: Report I. Ability of Various Bacteria to Pass Through the Kidneys of Healthy Rabbits. N. Nishikawa.—p. 5.
Gas Phlegmon: Three Cases. Fuh-Yüan-Hsüan and S. Nakai.—p. 6.
Serous Meningitis Following Chickenpox: Case. Y. Kimura.—p. 7.
Refining Toxin of Absorption Method of Aluminum Hydroxide: Part III. Toxin of Gonococcus. M. Yato.—p. 8.
Bacteriologic and Pathologic Observation of "Noma." M. Murayama.—p. 9.
Biochemical Study of Nitril Compound: Part III. Behavior of Endocrinous Medicine on Decomposition of Nitril. C. Tsuru.—p. 10.
Id.: Part V. Mutation of Nitril in Living Body. C. Tsuru.—p. 11.
Kala-Azar Found in Native Child Born in Niu-Chuang, Manchoukuo. T. Buto and Y. Yamamoto.—p. 12.

Paris Médical

2: 89-112 (Aug. 4) 1934

Disease of Naked Sponge Fishers. S. G. Zervos.—p. 89.
Empirical Climatology of Pulmonary Tuberculosis. C. Colbert and H. Mollard.—p. 97.
Particular Form of Craniofacial Malformation. A. Kreindler and M. Schachter.—p. 102.
Treatment of Periodic Asthenia. R. Benon.—p. 106.
Action of Viosterol Especially from the Point of View of Dentition. Pierron.—p. 107.
*Attempted Treatment of Epilepsy by Hypertonic Solutions. G. Villey-Desmeserets and J. F. Buvat.—p. 109.

Treatment of Epilepsy by Hypertonic Solutions.—Villey-Desmeserets and Buvat report on the treatment of three epileptic patients by intravenous injections of 2 Gm. of sodium chloride in 20 cc. of distilled water alternating with 7 Gm. of sodium bromide and 1 Gm. of sodium chloride in 20 cc. of distilled water. Usually three injections were given each week for a considerable period. Sometimes 15 Gm. of magnesium sulphate in 150 cc. of boiled water was instilled rectally, drop by drop. The results were favorable, especially in one case in which the number of epileptiform attacks decreased from about 130 a month to four or five a month.

Presse Médicale, Paris

42: 1257-1272 (Aug. 8) 1934

*Abdominal Tympany in Subperitoneal Hemorrhages. C. Lenormant and G. Cordier.—p. 1257.
*Clinical Value of Gastric Chromoscopy. S. Zibalis.—p. 1260.

Tympany in Subperitoneal Hemorrhages.—Lenormant and Cordier report two cases of diffuse abdominal tympany following injury accompanied by subperitoneal hemorrhage. In its extreme form this can show the true picture of paralytic ileus. In the first case there was a history of renal contusion with massive hemorrhage but not necessitating surgical intervention. Generalized tympany and meteorism followed for about six days, with arrest of fecal material and gas for three. In the second case the abdominal symptoms followed bilateral fractures of the anterior lateral quadrant of the pelvis. The abdominal syndrome of ileus appeared, with diffuse abdominal tympany and without organic peritoneal or pelvic lesion, but due solely to irritation of the region by abundant hematoma of the space of Retzius. They recognize that the theory of the explanation which they advance is as yet insufficiently demonstrated. Thus a violent contusion affecting a sensitive zone of the anterior peritoneum produces a contraction. These are the contractions observed in intraperitoneal hemorrhages of the splenic ruptures. If the irritation caused by the blood is on a less excitable zone such as the posterior, the prerenal or the pelvic peritoneum, the result is as if the excitation remained below the threshold necessary to produce a medullary reflex. The sympathetic alone responds with intestinal distention and its clinical sign of tympany. If the hemorrhage ceases, the excitation stops and the meteorism disappears. If it persists or especially if an added irritative factor such as a blood clot occurs, the picture of an ileus or a parietal defense response appears.

Value of Gastric Chromoscopy.—In an attempt to determine whether gastric chromoscopy can replace the usual gastric test meal analysis, Zibalis examined a number of patients by both methods. His technic is as follows: After the patient has fasted for twelve hours, Einhorn's sound is introduced into the stomach; then, after the extraction of a sufficient quantity of fluid to titrate the fasting acidity, 5 cc. of a 1:100 solution of neutral red is injected in the buttocks. After the injection a small amount of gastric secretion is removed each minute and the time noted between the injection and the appearance of the first rose drops of gastric fluid. That is the chromoscopic time. Then the patient is given the alcohol test meal by sound (300 cc. of a 5 per cent solution of alcohol). Every thirty minutes some fluid is removed and titrated in the usual way. In this manner the results of the two examinations are obtained at the same sitting. The cases examined were divided into four groups according to the degree of gastric acidity: normal, hyperacidity, hypo-acidity, and anacidity. In five of the six with normal acidity the results of chromoscopy and gastric acidity concurred. If, however, the results of Held are admitted that a chromoscopic time of twenty-four minutes is still normal, the six cases agreed. In the five examined cases of hypo-acidity, concordant results were obtained three times. In the ten cases of hyperacidity there was agreement in only three. Of the four cases of anacidity examined, none eliminated the dye in the stomach. The author believes that the discrepancy is due to secretion of mucus, which delays the elimination of the dye. He concludes that gastric chromoscopy cannot replace the examination of the gastric chemistry. Neutral red, however, remains a useful auxiliary in the functional examination of the stomach, especially in cases of anacidity.

Clinica Chirurgica, Milan

37: 635-830 (July-Aug.) 1934. Partial Index.

*Renal Decapsulation and Periarterial Sympathectomy in Suppurative Nephritis. L. Moriconi.—p. 637.
Fractures of Upper Extremity and Diaphysis of Humerus in Infancy. E. Santi.—p. 648.
Clinical Observations, Histologic and Macroscopic Lesions of Appendicitis in Disease Associations with Cholecystitis and Gastric and Duodenal Ulcer. G. G. D'Antona.—p. 677.

Renal Decapsulation and Periarterial Sympathectomy in Suppurative Nephritis.—Moriconi studied the effect of bilateral decapsulation of the kidney and of bilateral sympathectomy of the renal artery on the appearance and evolution of suppurative nephritis. The disease was artificially produced in dogs through intravenous injections of a culture of a strain of Staphylococcus tropicus in the kidney. The author observed a marked increase in the elimination of urine by the tenth day after operation, with concomitant hyperemia of the organ itself. The increased flow of urine and the accompanying hyperemia are of no value in the prevention of the experimentally produced bilateral suppurative nephritis. The advantages of mononephrectomy do not lie in the greater facility for elimination of micro-organisms through the increased excretion of urine or in accompanying hyperemia but in the increase of the local defense power. This increase likewise improves functional activity.

Policlinico, Rome

41: 393-452 (Aug. 15) 1934. Surgical Section

*Nephrotomy Without Suture. C. M. Le Roy.—p. 393.
Cystic Intestinal Pneumatosis: Case. R. Memmi.—p. 408.
*Accessory Pancreas and Its Surgical Importance. L. Ugelli.—p. 424.

Nephrotomy Without Suture.—Le Roy made a full longitudinal incision on the convex side of the kidney of dogs and rabbits and opened up the whole renal pelvis. To obtain perfect hemostasis, he tied the two renal vessels together for from three to five minutes without applying any suture. In twelve animals subjected to bilateral nephrotomy without suture, cure was attained with only temporary hematuria in the first days following operation and without production of infarct so as to constitute a limited loss of substance with only temporary danger of functional impairment of the organ. The author states that nephrotomy without suture, as successfully carried out by Papin, is worthy of the greatest interest. It merits a wider application, since the points of suture of the kidney represent a frequent cause of late hemorrhages. In a dog with only one kidney after nephrectomy of a month's standing, nephrotomy without suture had to be abandoned because of persisting hemorrhages due to the abundant distribution of the blood vessels accompanying the compensatory hypertrophy of the organ.

Accessory Pancreas and Its Surgical Importance.—Ugelli presents the following observations based on 106 cases from the literature on accessory pancreas and on five cases personally observed. He states that the accessory pancreas is generally found in the thickness of the walls of the gastroenteric tube, from the cardia to the ileocecal valve. The stomach, the duodenum and the first loop of the jejunum were the most frequent sites of the accessory pancreas in the literature and in the author's observations. Accessory pancreas sometimes occurs in the intestinal diverticula. Seldom more than one accessory pancreas is found in a single patient. It may occur at any period of life. It is found equally well in men and in women. It is always congenital and may be associated with other congenital malformations. The nodule of the accessory pancreas is small and hard. Its histologic structure is similar to normal pancreatic tissue but may have only

glandular acini, or typical centro-acinous cells, or islets of Langerhans and excretory conduits. It is generally agreed that the accessory pancreas has both internal and external secretion. Little functional value is attributed to this secretion. The accessory pancreas may be the seat of disease processes involving the principal gland, such as acute necrosis, abscess, chronic inflammation, cystic degeneration, and tumors benign and malignant. In most cases the accessory pancreas is latent and is discovered only at operation or necropsy. Other cases present epigastric pains with frequent radiations to the right hypochondrium, symptoms of biliary calculosis and loss of weight. The only method of treatment is surgical intervention. The author concludes that this anomaly is not as rare as is generally believed and that it constitutes a frequent disorder capable of determining various disease symptoms and grave complications.

Prensa Médica Argentina, Buenos Aires

21: 1513-1564 (Aug. 15) 1934

Constitutional and Hereditary Factors in Ulcers of Stomach and Duodenum. C. Bonorino Udaondo.—p. 1513.
*Normal Phenolemia. M. R. Castex and A. F. Arnaudo.—p. 1524.
Glomerulonephrosis in Pregnancy. C. P. Waldorp and C. A. Bordo.—p. 1537.
Tuberculous Granulia with Buccopharyngolaryngeal Predominance: Case. C. A. Videla and J. Peroncini.—p. 1546.

Normal Phenolemia.—Castex and Arnaudo conclude that the normal concentration of phenols in the blood either is constant or shows but small variations. Normal persons receiving an atoxic diet show, as a rule, lower figures of phenolemia than those of normal persons who receive meat in their diet. The figures of phenols in the blood of normal persons frequently, although not constantly, run parallel to those of urea in the blood. Under normal conditions the elimination of large amounts of phenols does not modify the figures of phenolemia. The values of phenoluria cannot be determined by those of phenolemia in normal persons. Conjugated phenols in small amounts are constantly in the normal blood. At certain times they cannot be found in the blood, although they exist in large amounts in the urine. By using the Theis and Benedict method for the determination of phenols in the arterial and venous blood, no variations between the arterial and the venous phenolemia can be observed. While reporting the figures of phenolemia, it is indispensable to specify both the method used in its determination and the diet received by the patient during the determinations. The following are admitted by the authors as normal values of phenolemia in normal man and by using the Theis and Benedict method: free phenols, from 1 to 1.3 mg., total phenols from 1.1 to 1.4 mg., and conjugated phenols from 0 to 0.3 mg. per hundred cubic centimeters of blood. The variations originating in the differences of alimentation are included within these limits.

Monatsschrift für Kinderheilkunde, Berlin

60: 241-320 (July 7) 1934

Goat's Milk Anemia in Animal Experiment. Grete Haase.—p. 241.
*Catalytic Property of Blood of Children. G. Török and L. Neufeld.—p. 254.
Studies on Diphtheria Cases in Family. Luise Holl.—p. 264.
Agenesia of Caudal Portion of Vertebral Column. K. Goldhamer.—p. 269.
Tissue Reactions in Pneumonia. E. Barla-Szabó.—p. 282.
*Practical Evaluation of Ninni's Experimental Tuberculosis in Children. V. Mikulowski.—p. 293.

Catalytic Property of Blood of Children.—Török and Neufeld review former studies on the catalytic property of the blood of adults and children, pointing out that the condition of the liver, the endocrine system, nervous influences and the vitamins exert an influence on the catalytic properties of the blood. They show that attempts were made to use the catalase determination for clinical purposes. However, tests on children and nurslings revealed such great fluctuation under normal conditions that it seemed useless to determine the catalase content in pathologic conditions. In recent experiments, efforts were made to employ methods that avoid as much as possible all sources of error, but even in these the results were not entirely satisfactory. Consequently the authors decided to exclude also all external influences known to influence the catalytic properties of the blood. The tests were made only on children who had been under their observation for some time and who were in bed the greatest part of the day, which largely eliminated the light factor and the influence of muscular exertion. The children received the same diet, and the withdrawal of blood was always done at the same room temperature and at the same time of the day (evening). The withdrawal was nearly always preceded by a fast of three hours, and only in a few control cases was the blood withdrawn half an hour after the meal. The tests were carried out during February and March, in a dark room and in weak illumination. The method employed was Bach-Levinger's titration procedure, in which the quantity of catalase is determined from the course of the reaction speed or from the velocity constant. In tests on adults this method had been employed by several investigators, but so far it had not been used on children. The authors, in comparing the results they obtained in children with those that had been observed in adults, find that the fluctuation is much greater in children than in adults. In healthy adults the velocity constant varied between 0.0184 and 0.0268, while in children the marginal values were 0.01600 and 0.04491. When the tests were repeated, more or less the same results were obtained, the greatest difference being 20 per cent. The authors conclude that their results are sufficiently exact to make their method available for experimental purposes.

Practical Evaluation of Ninni's Experimental Tuberculosis in Children.—Mikulowski points out that while the subcutaneous or the intraperitoneal inoculation of guinea-pigs with material of suspected tuberculous infection reveals the presence of tubercle bacilli only after five or six weeks, Ninni's method, the injection into the cervical glands, provides the same information in from ten to twenty days. He determined the reliability of Ninni's method on thirty specimens of cerebrospinal fluid, ten exudates, five homogenized sputums and five specimens of pus. The specimens were centrifugated and 0.1 cc. was injected into the surgically exposed cervical glands of both sides of the animals. Then the wounds were sutured. From ten to twenty days later, the glands were taken out, crushed and examined for the presence of tubercle bacilli. The glands commence to become palpable two weeks after injection, and thereby they also reveal the presence of tubercle bacilli.

Münchener medizinische Wochenschrift, Munich

81: 1225-1260 (Aug. 10) 1934. Partial Index

*Electrocardiographic Control of Apparent Death and of Resuscitation Possibilities. O. Bruns.—p. 1225.
*Specificity of Extract of Spirochetes in Serologic Diagnosis of Syphilitic Changes in Cerebrospinal Fluid. F. Marquardt.—p. 1229.
Efficacy of Ramstedt's Operation in Pyloric Stenosis of Nurslings. P. Bode.—p. 1234.
*Treatment of Scurvy by Parenteral Administration of Vitamin C. E. E. Bauke.—p. 1240.

The Electrocardiograph and Resuscitation Possibilities.—Bruns observed in asphyxiated animals that the electrocardiograph still registered cardiac activity thirty minutes after pulsation and cardiac sounds had disappeared, and he thinks that the same is probably true in human subjects. Thus it is proved by electrocardiographic studies that resuscitation efforts should not cease when respiration and heart beats fail but should be continued until rigor mortis and death spots appear. The author shows that electrocardiography is of great value in estimating the efficacy of the various resuscitation methods, particularly the different forms of artificial respiration, the stimulants applied to the skin and the mucous membranes, and the various forms of medicinal and mechanical cardiac stimulants. He emphasizes that an artificial respiration which does not at the same time stimulate the cardiac activity is of no value. In experiments with a pulmotor the electrocardiogram revealed that the mere entrance and exit of the air mixture exerted no influence on the heart. Consequently the apparatus was changed so as to prolong the interval during which the air is withdrawn and to afford an opportunity to percuss, concuss and press the thorax without necessitating a reversing of the apparatus. The electrocardiogram revealed that every percussion or massage pressure on the heart produced electrical currents in the heart. The author concludes from this that every artificial respiration, even the one carried out with a pulmotor, must be supplemented by energetic heart massage.

The mechanical and chemical irritants applied to the skin and the mucous membrane of the apparently dead reach the respiratory, cardiac and vascular centers and stimulate their activity. However, some of these sensory stimulants, particularly when applied to the chest, back and arms, reach the sympathetic innervation of the heart by way of the sensory cutaneous nerves and by way of the communicating branches. To make this possible, it is of course necessary that these nerve channels are still functioning. This can be detected in the electrocardiogram. If the electrocardiogram reveals electric currents in response to mechanical or chemical irritants, the autonomic nervous system can still function. The author observed in the course of electrocardiographic studies that only in unconscious persons, in whom the corneal reflexes are still demonstrable and in whom there is still a slight respiratory and cardiac activity, the cutaneous and mucous membrane irritants are capable of reaching the vital centers in the medulla oblongata and in the heart itself. After the corneal reflexes have been abolished and after respiration and cardiac action have ceased, the function of the sympathetic and of the vagus has already ceased and the irritants applied to the skin or to the mucous membrane no longer have any effect.

Specificity of Spirochetal Extract in Syphilitic Changes in Cerebrospinal Fluid. — Marquardt mentions a previous report in which he could prove that the pallida antigen is more sensitive in the Wassermann test of the blood than are extracts of syphilitic liver, beef heart or cholesterol. He found also that the spirochetal extract is particularly sensitive in tests on the cerebrospinal fluid. However, it was not determined at the time whether the greater sensitivity was not perhaps at the expense of the specificity. Using a larger material, he has made comparative studies on 486 specimens of cerebrospinal fluid. He finds that the positive outcome of the Wassermann reaction, which is made with the spirochetal extract, indicates syphilis with great certainty. If increase in protein and in cell elements is lacking, and if the colloidal gold, mastic and Meinicke clarification reactions are negative, the Wassermann reaction with the spirochetal extract is negative just like the one made with the extract of syphilitic liver. In cases of syphilis with changes in the cerebrospinal fluid, the Wassermann reaction with the spirochetal extract surpasses in sensitivity the Wassermann reaction employing extract of syphilitic liver, as well as the protein and colloidal reactions, and it is at least as reliable as the clarification reaction of Meinicke.

Treatment of Scurvy by Parenteral Administration of Vitamin C.—Bauke describes a severe case of dietary scurvy with ulcerative gingivitis, severe anemia, suffusions, constant increase in the temperature and psychic disturbances. Daily intravenous injections of 100 mg. of l-ascorbic acid promptly improved the condition. The increase in temperature disappeared on the second day of this treatment. Comparison with other reports revealed that the parenteral administration of l-ascorbic acid greatly reduces the period of recovery. The author thinks that this parenteral method is advisable particularly in the severe cases, but also in patients in whom scurvy or prescurvy is accompanied by gastro-intestinal disturbances, such as subacid or anacid gastritis, in order to prevent chemical changes that might reduce the efficacy of ascorbic acid.

Wiener Archiv für innere Medizin, Vienna

25: 1-160 (June 20) 1934

*Demonstration of Insulin in Blood by Means of Blood Transfusion: Studies on Persons With and Without Diabetes. R. Boller, K. Uiberrak and W. Falta.—p. 1.
Humoral Nature of Insulin Resistance. R. Boller, K. Uiberrak and W. Falta.—p. 25.
Cytologic Blood Picture of Persons Who Feed Lice. A. Finkel.—p. 49.
Doubling of Frequency in Paroxysmal Tachycardias and in Auricular Flutter. P. D. Camp and D. Scherf.—p. 67.
Incidence of Late Syphilis. P. Fortunoff and A. Maller.—p. 77.
Testing of Tonus of Sympathetic Nervous System. G. Bergman and Ola Bukspan.—p. 115.
Aleukemic-Leukopenic Chloromyelosis. U. Strasser.—p. 133.
Allergic Diseases. E. Löwenstein.—p. 145.

Demonstration of Insulin in Blood. — Boller and his associates succeeded in demonstrating by means of blood transfusions that the blood of persons without metabolic disturbances contains minimal amounts of insulin when the person is fasting, but larger amounts after a meal with a high carbohydrate content. Control experiments, in which insulin was administered intravenously, revealed that the quantities of insulin that appear in the blood of normal persons are comparatively small (at the most from 1 to 2 units in 100 cc. of blood). The blood transfusion experiments revealed further that the blood of diabetic patients, who are susceptible to insulin, contains no insulin following a carbohydrate meal. Moreover, in severe diabetes, in which there exists a resistance to insulin, the blood has no or only slight amounts of insulin following a carbohydrate meal, and in some instances the blood from these persons even increases the blood sugar of the recipient.

Zeitschrift f. Geburtshülfe u. Gynäkologie, Stuttgart

109: 1-124 (July 27) 1934

*Nature, Diagnosis and Treatment of Preeclampsia. T. Heynemann.—p. 1.
*Prognostic Significance of Pressure of Cutaneous Vessels in Patients with Preeclampsia. D. Raisz and L. Hazay.—p. 21.
Relations Between Connective Tissue and Muscles in Wall of Pregnant Uterus. H. Froböse.—p. 31.
Pharmacologic Conduction of Birth. F. A. Wahl.—p. 48.
Cause and Type of Anemization During Pregnancy. A. Pohl and W. Bergmann.—p. 63.
Vaginal Flora of Human Subjects and of Mammals and Its Significance for Pathogenesis, Epidemiology and Lemology of Diphtheria. J. von Khreninger Guggenberger.—p. 82.

Nature, Diagnosis and Treatment of Preeclampsia.—Heynemann maintains that eclampsia and preeclampsia do not differ in their essential nature but are the same, the differentiating sign being a single clinical symptom, the convulsions. The clinical difference is generally only one of degree. Formerly the diagnosis was based mainly on subjective symptoms, such as headache, visual disturbances, nausea, vomiting, dyspnea, asthma, accelerated breathing and increased depth of respiration. He thinks that headache is the most frequent and occasionally the only symptom and advises that headache, occurring without fever, should be considered a preeclamptic symptom, unless some other cause can be found. He shows that disintegration of the blood (hemoglobinuria and hematinemia) and development of hepatic disturbances (icterus and increased bilirubin content of the blood) indicate preeclampsia, particularly in case of edema and renal changes. However, the majority of cases of preeclampsia lack these symptoms. Changes in the fundus of the eye (form and size of vessels) are present in some patients. The results of vascular spasms are observable also in the capillaries of the nail groove, but their utilization for the diagnosis of preeclampsia is possible only with certain limitations. The epinephrine probe test of Muck is nearly always positive, but, since it is frequently present in patients without eclampsia and preeclampsia, its diagnostic significance in eclampsia is limited. Greater importance may be attached to the facial edema, for it is present in nearly all women with eclampsia and preeclampsia. Anxious restlessness of parturient women is often the most prominent preeclamptic sign. The increase in the depth of respiration is likewise typical for preeclampsia. Then there is the reduced galvanic irritability of the median nerve. The increase in blood pressure is one of the most important signs, because it is generally the earliest indication of a preeclamptic state. A decrease in the quantity of urine and a considerable increase in the protein content are also signs of a beginning eclampsia. In some instances a sudden impairment of the general condition is the only indication of preeclampsia. If this symptom appears, the possibility of vascular collapse, cardiac weakness, rupture of the uterus, internal hemorrhage or preeclampsia should be considered. Premature detachment of the placenta, in case of a normal site of attachment, is not always a sign of preeclampsia. The author points out that in cases with indefinite signs the diagnosis may be difficult, but he emphasizes that a too frequent diagnosis is less dangerous than the failure to recognize eclampsia. At the first appearance of preeclamptic symptoms, venesection should be done. The first withdrawal should not be less than from 300 to 500 cc. If after this the preeclamptic symptoms do not disappear, the venesection should be repeated, or delivery by cesarean section

should be done at once, provided forceps delivery or version is not feasible. If icterus, greatly increased bilirubin content of the blood, changes in the fundus of the eye and stupor indicate a serious condition, cesarean operation should be done at once. Hypertension as such does not necessitate abdominal delivery, but, if it persists in spite of treatment, prompt delivery is advisable. The author evaluates a number of medicinal preparations that have been recommended by different investigators. He shows that the use of most of them is not sufficiently well founded.

Pressure of Cutaneous Vessels in Patients with Preeclampsia.—Raisz and Hazay conducted their studies with the aid of Herzog's apparatus, which measures not the pressure in the capillaries but rather the resistance opposed by the cutaneous vessels to the blood entering from the arteries. They found that the pressure of the cutaneous vessels of healthy pregnant women does not differ from that of healthy nonpregnant women. In pregnant women with edema, it was found that the pressure of the cutaneous vessels is much lower than in healthy persons. Studies on women with preeclampsia and eclampsia, however, revealed a greatly increased pressure in the cutaneous vessels, and the authors show that the pressure in the cutaneous vessels is a more reliable indicator of an impending eclampsia than is arterial pressure, protein content of urine, extension of edema or the various subjective symptoms.

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58: 1873-1920 (Aug. 11) 1934

Genital Hemorrhages in Thrombopenia: Two Cases. E. Junghans.—p. 1874.
Development of Carcinoma in Deformed Uterus (Double Uterus and Divided Vagina). C. Renner.—p. 1880.
*Irradiation of Cancer of Uterine Cervix During Pregnancy. H. Hofmann.—p. 1886.
Primary Syphilitic Lesion of Vaginal Portion of Uterine Cervix with Aspects of Carcinoma. W. Nissen.—p. 1894.
*Influence of Ovarian Hormone on Blood Pressure. S. Liebhart.—p. 1896.

Irradiation of Cancer of Uterine Cervix During Pregnancy.—Hofmann cites some results of the surgical treatment of cervical carcinoma during pregnancy and shows that they are satisfactory as far as the mother is concerned. The child, however, if not yet viable, must be sacrificed. In irradiation the greatest danger for the child lies in the possibility of impairment by the rays, which increases proportionately to the earliness of the pregnancy, because in the earlier stages of pregnancy the distance between the source of the rays and the embryo is still rather small, and even during the second half of pregnancy an impairment by rays cannot be entirely excluded. The danger of damage to the fetus increases with the quantity of rays and when a cervical application is made in addition to a vaginal one. The use of roentgen rays is much more dangerous than the use of radium rays. The mother is in danger because the irradiation may be followed by an abortion and this in turn by an infection. Moreover, the author cites a statistical report which proves that the permanent cures are only slightly more than half as frequent after irradiation as after surgical treatment, and he agrees with the statistician that differences in the results of the two methods are sufficiently great to conclude that irradiation is hardly ever justified. But he admits that there may be cases in which irradiation has to be tried. He describes such a case. A woman, aged 27, mother of one child, asked medical aid on account of a profuse vaginal discharge. It was found that she was pregnant in the fifth month and that an erosion on the cervix was cancerous. Since the woman rejected an operation and insisted on carrying the child to term, irradiation was decided on. Small doses of radium rays were applied in two sessions and roentgen irradiation was entirely dispensed with. The child was delivered spontaneously at the normal time and there were no puerperal complications. The child gave no indication of impairment by rays. Several months after delivery the cervix again showed an erosion, and the woman was again pregnant (second month). The author considers this new pregnancy worthy of note, because pregnancy is rare following irradiation of cervical carcinomas. The woman submitted to a vaginal amputation of the uterus. At present, two and a half years after the radium treatment, both mother and child are doing well. That the subsequent extirpation of the uterus was justified was revealed by the histologic examination of the cervix, disclosing numerous metastases. This also proves the great danger of irradiation with insufficient doses. Moreover, the author concedes that two and a half years is not a sufficiently long period to arrive at a definite conclusion, and that, even if the favorable effect should persist, a single case would not disprove the contrary testimony of larger statistics.

Influence of Ovarian Hormone on Blood Pressure.—Liebhart made tests with various forms of ovarian hormone on more than 300 persons: men, girls of the prepuberal age, mature normal women, castrated women and women of the menopausal age. All forms of application were tried and the doses varied between 100 and 5,000 mouse units. The blood pressure values were determined with the Riva-Rocci apparatus. It was found that the follicular hormone reduces the blood pressure slowly. Tests were made also to compare the blood pressure reducing action of the follicular hormone with that of histamine, of choline and of extracts of striated muscles and other organs. It was observed not only that the action mechanism of the ovarian hormone differs from that of other substances but that it is of a specific hormone nature. In further tests, the author studied the reaction of the sympathetic nervous system to the influence of the ovarian hormone. He reaches the conclusion that the blood pressure action of the follicular hormone, as well as of the other substances investigated, depends on a number of other factors that are determined by hormonic, nervous and constitutional influences. The author summarizes the results he obtained on the various groups of persons. He observed that the follicular hormone extract influenced the blood pressure of men and of boys, but that the change was considerably less than in women. The pressure changes in girls of the prepuberal age resemble those in men and boys. Tests on women revealed that the reduction in blood pressure, following administration of follicular hormone, is greatest in women entering the menopause. Most of these women had hypertension and the extent of the reduction was correspondingly more pronounced. The author gained the impression that after the administration of follicular hormone the blood pressure decreases proportionately to the deficiency in the ovarian function.

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96: 865-888 (Aug. 9) 1934

Blood Transfusion with Especial Reference to Its Technic and Its Surgical Indications. P. Morville.—p. 865.
Thrombosis of Coronary Artery of Heart: II. Some Common Variants of Picture. J. E. Holst.—p. 871.
*Epigastric Hernia Simulating Heart Disease. H. Kjærgaard.—p. 875.
Weil's Disease: Case. J. Nordentoft.—p. 876.

Epigastric Hernia Simulating Heart Disease.—The epigastric hernia in Kjærgaard's patient, a man aged 33, is thought to have slowly developed in the last eight years. During this time hard labor was followed by attacks of poignant pain, always retrosternal, although the hernia was located 8 cm. below the xiphoid process. The symptoms disappeared after herniotomy.

96: 889-912 (Aug. 16) 1934

Modern Treatment at Health Resorts. E. Rud.—p. 889.
*Bilirubin Tolerance Test as Liver Function Test. K. Brøchner-Mortensen.—p. 892.
New Table for Anesthesia. O. Povlsen.—p. 899.
Weil's Disease. T. Madsen.—p. 900.

Bilirubin Tolerance Test.—From his results and comparison with the results of other liver function tests, Brøchner-Mortensen concludes that in its limited field of application the bilirubin tolerance test is a sensitive test of the liver function. While inapplicable in hepatic disorders with bilirubinuria, it is useful in the diagnosis of cirrhosis and in evaluation of the condition of the liver in chronic hepatitis and cholangeitis and in examination of possible injury of the liver in infectious diseases and different disorders, such as diabetes, exophthalmic goiter and certain skin and brain disturbances. It may prove to be especially suitable for the investigation of possible lasting functional disorders of the liver following acute hepatitis.